OHM Remediation Services Corp.
A Subsidiary of OHM Corporation

SITE-SPECIFIC HEALTH & SAFETY PLAN FOR REMEDIATON ACTIVITIES CENTRAL STEEL DRUM SITE NEWARK, ESSEX COUNTY, NEW JERSEY

Prepared for:

U.S. Environmental Protection Agency
Region II - Removal Action Branch
Edison, New Jersey

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1.0 INTRODUCTION

This Health and Safety Plan (HASP) has been developed for the U.S. Environmental Protection Agency Region II.

This HASP documents the policies and procedures which protect workers and the public from potential hazards posed by work at this site and is a key component in the ***OHM Safety Improvement Process***. OHM considers safety the highest priority during work at a site containing potentially hazardous materials and has established a goal of **zero incidents** for all projects. All projects will be conducted in a manner which minimizes the probability of injury, accident, or incident occurrence. This HASP is a key element in the proper planning of project work which is necessary to assure the goal of **zero incidents** is achieved. The HASP Certification (Appendix A) will be signed by all who actively participate at this project.

The procedures and guidelines contained herein are based upon the best available information at the time of the plan's preparation. Specific requirements will be revised by the On-Scene Coordinator (OSC) when new information is received or conditions change.

All personnel entering the site shall read and sign this safety plan. Protocol set forth herein will remain in effect until the OSC certifies that activity is terminated. It does not supersede any Federal, OSHA, state, or local regulations, but is in addition to them. In the event of a conflict between this protocol and a regulation, the more stringent of the two will be enforced.

The protocol is in accordance with, and refers to, the terminology used in the Office of Emergency and Remedial Response (OERR) Standard Operating Safety Guides.

1.1 SITE HISTORY

The site is located at 704-738 Doremus Avenue, Newark, New Jersey, 07105. The site is situated in an industrial area in the Iron Bound section of Newark and consists of a large manufacturing building located on 8.5 acres. The census statistics within a 1.5 mile radius of the site shows a population of 7,023 persons. Before 1952, an ink manufacturer occupied this site (International Printing Ink, Division of Interchemical Corporation, now part of Inmont Corp.). From 1952 to approximately 1991, Central Steel and Drum operated a drum reconditioning business. After vacating the property, a container shipping operation leased the property. According to NJDEP, the property has been abandoned since 1994.

The site is situated on filled wetland. On the south end of the property, bordering one side of the property, is an existing wetland where drums have been observed. To the west, along Doremus Avenue, are railroad tracks. The site, other than the main building, is gravel/weed covered, filled vacant land.

EPA on March 14-15, 1997, determined that approximately 500 drums of flammable, corrosive, possible water reactive, incinerator ash and sand blasting materials are abandoned on the site. In total, approximately 50,000 gallons of hazardous wastes are estimated to be abandoned throughout the building/site (approximately 35% are solid wastes). Information regarding hazardous wastes at the site are based upon container labels, hazcatting and historical documents identified.

The site consists of one main building. It has been used as a commercial dumping ground (evidenced by truck tires, construction debris, etc.). The property is partially fenced and there are no gates at the entrance. However, vehicles cannot enter the property, since there are four large concrete blocks (approximately 3 feet high) barring entry.

The building is 200 ft. X 500 ft., masonry construction with a metal truss roof. The building is in deteriorated condition and the roof leaks. All utilities have been turned off. There is no fire suppression system available in the building. The building was found to be unsecured and there is evidence of vandalism, dumping and public entry. In a trailer on the property, it appears that some is using this as shelter.

Central Steel Drum received drums from various industries ranging from food to paint manufacturing. Its reconditioning operations involved incineration, sandblasting and repainting. There are approximately 750 drums of waste on the property. Approximately 50 percent contain acids, flammables, water reactive, paints and other waste materials. The remaining 50 percent contain incinerator ash. Incinerator ash was used as fill on the property. The main hazardous constituent in the ash is lead. Random XRF screenings indicate lead contamination above the 10,000 ppm range at certain locations throughout the property.

1.2 SCOPE OF WORK

The principal tasks to be conducted are listed below.

- Mobilization, site setup
- Drum and container handling, overpacking
- Drum and container sampling
- UST removal, clean and scrap
- On-site HAZ-CAT testing
- Equipment decontamination

These activities have been analyzed for potential hazards for which control measures are provided in Section 3.4 Job Safety Analysis.

This HASP has been prepared for the above scope of work. Any changes to the scope of work will require amendment of the plan to remain approved.

FIGURE 1.1
AREA MAP

2.0 KEY PERSONNEL

The USEPA On-Scene Coordinator (OSC), ERCS Program Manager (PM), Response Manager (RM), Certified Industrial Hygienist (CIH), Health and Safety Manager (HSM), Project Safety Officer (PSO) and START representatives share responsibilities for formulating and enforcing health and safety requirements, and implementing the HASP.

2.1 ON-SCENE COORDINATOR (OSC)

The OSC, as the representative of the U.S. Environmental Protection Agency (EPA), is responsible for the overall project administration and coordinating health and safety standards for all individuals on site at all times. All applicable Occupational Health and Safety Administration standards shall be observed. However, each contractor (as an employer under OSHA) is responsible for the health and safety of its employees.

2.2 SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM (START)

The Superfund Technical Assessment and Response Team is responsible for providing the OSC with assistance and support in regard to all technical, regulatory, and safety aspects, of site activity. START is also available to advise the OSC on matters related to sampling, treating, packaging, labeling, transporting, and disposing of hazardous materials, but is not limited to that mentioned above.

2.3 PROGRAM MANAGER (PM)

The PM has the overall responsibility for the project and to assure that the requirements of the contract are attained in a manner consistent with the HASP requirements. The PM will coordinate with the SS and the SSO to assure that the work is completed in a manner consistent with the HASP. The PM will conduct a periodic health and safety audit of the project using the Management Safety Improvement Report form as required in the Standard Operating Procedure. The PM reports to the Director of Operations. Specific Key Requirement Areas (KRA's) for safety performance include:

- Implement Site Specific Safety Awareness/ Recognition program
- Conduct periodic site audit (Management Safety Improvement Report) one report within 30 days of mobilization; one report within 60 days of mobilization
- Investigate and report findings for any OSHA recordable cases; assure corrective actions are taken

2.4 RESPONSE MANAGER (RM)

The RM is responsible for field implementation of the HASP and Site Emergency Response and Contingency Plan. The RM is responsible for field implementation of the HASP and will act as the PSO in the absence of the assigned PSO. The RM will establish and ensure compliance with site control areas and procedures and coordinate these supervisory responsibilities with the site PSO. Specific Key Requirement Areas (KRA's) for safety performance include:

- Complete Job Safety Analyses for all principle tasks
- Implement Safety Awareness/ Recognition program
- Conduct weekly safety inspections of job sites

- Correct all deficiencies as noted on Management Safety Improvement Reports and safety department audits, within recommended time frames
- Investigate and report findings for All OSHA recordable cases; assure corrective actions are taken

2.5 HEALTH AND SAFETY MANAGER (HSM)

The OHM HSM is responsible for staffing health and safety personnel and monitoring projects for compliance with regulatory and OHM health and safety policies and procedures. This position reports to the Regional Health and Safety Director and may visit the site periodically to ensure compliance with this HASP.

2.6 PROGRAM CERTIFIED INDUSTRIAL HYGIENIST (CIH)

The Program CIH shall be responsible for reviewing the HASP and ensuring that the HASP is complete and accurate. The Program CIH provides technical and administrative support for the ERCS Health and Safety Program. If necessary, the CIH can modify specific aspect of the HASP to adjust for on-site changes that affect safety. The CIH will coordinate with the PSO on necessary modifications to the HASP and will be available for consultation when required. The CIH may make periodic site visits to determine compliance.

2.7 PROJECT SAFETY OFFICER (ERCS)

The PSO's primary responsibilities will be monitoring, including personal and environmental monitoring, conduct safety orientation, and review site safety practices and documentation. The PSO will make periodic visits to the site to fulfill these duties. Specific Key Requirement Areas (KRA's) for SSO performance include:

- Monitor workers for signs of stress, such as cold exposure, heat stress, and fatigue
- Reevaluate site conditions on an on-going basis. Coordinate protective measures including engineering controls, work practices and personal protective equipment
- Assist the RM in the preparation, presentation and documentation of daily safety meetings
- Conduct and prepare reports of daily safety inspections of work processes, site conditions, equipment conditions and submit to RM. Discuss any necessary corrective actions with the RM and review new procedures
- Initiate revisions of the HASP as necessary for new tasks or modifications of existing operations and submit to the Project CIH for approval
- Perform air monitoring as required
- Assist the PM and RM in accident investigations
- Prepare permits for special operations, e.g., hot work, confined spaces, line breaking, etc.
- Maintain site safety records
- Conduct weekly inspections of all fire extinguishers, supplied air respirators, first-aid kits, and eye washes/emergency showers
- Ensure that project management/ purchasing has pre-qualified sub contractors during the bidding stage. Inform subcontractors of the elements of the HASP/contractor pre-job checklist
- Coordinate the preparation of Job Safety Analyses with the RM, team leader, and work crew
- Coordinate the daily Safety Observer Program
- Coordinate the Safety and Health Awareness and Recognition Program (SHARP) with Project Manager and Response Manager

2.8 EMPLOYEE SAFETY RESPONSIBILITY

Each employee is responsible for personal safety as well as the safety of others in the area and is expected to participate fully in the ***Safety Improvement Process***, particularly the Safety Observation Program. The employee will use all equipment provided in a safe and responsible manner as directed by the RM. All OHM personnel will follow the policies set forth in the OHM Health and Safety Procedures Manual, with particular emphasis on the OHM "Cardinal Safety Rules." Employees that knowingly disregard safety policies/procedures may be subject to disciplinary actions.

2.9 RESPONSIBILITIES

2.9.1 On-Scene Coordinator (OSC)

The National Oil and Hazardous Substance Pollution Contingency Plan (NCP) authorizes the OSC to coordinate and direct federally financed response or clean-up activities at the site. The NCP also makes the OSC responsible for addressing worker safety concerns at the response scene (see 40 CFR 300.135 and .150).

At this hazardous waste site, the primary responsibilities of the OSC relative to safety include the following:

a. To ensure that all personnel allowed to enter the site (i.e., EPA, START, contractors, State, visitors) are aware of the potential hazards associated with substances known or suspected to be on-site;

b. To ensure that said personnel are aware of the provisions of this plan and are instructed in the safety practices defined in the plan, including its emergency procedures;

c. To ensure that the appropriate safety equipment is available and properly utilized by all personnel on-site;

d. To direct the safety monitoring efforts of the Site Safety Monitor; and

e. To correct any work practices or conditions under his control that may result in exposure to hazardous substances or injury to personnel

The OSC may alter this Health and Safety Plan in writing as warranted by site conditions.

2.9.2 Emergency Response Cleanup Service (ERCS)

The Response Manager (RM), as the field representative for the ERCS cleanup contractor, has the responsibility for fulfilling the terms of the Delivery Order. The RM must oversee the project and ensure that all technical, regulatory, and safety requirements are met. It is the RM's responsibility to communicate with the OSC as frequently as dictated by the OSC, but at least daily, regarding site cleanup progress and any problems encountered.

2.9.3 Superfund Technical Assessment and Response Team (START)

The Superfund Technical Assessment and Response Team is responsible for providing the OSC with assistance and support in regard to all technical, regulatory and safety aspects of site activity, and acting as the Site Health and Safety Monitor as directed by the OSC. START is also available to advise the OSC on matters

relating to sampling, treating, packaging, labeling, transporting, and disposing of hazardous materials, but is not limited to the above-mentioned activities.

2.10 KEY SAFETY PERSONNEL - PHONE NUMBERS

The following individuals share responsibility for health and safety at the site.

USEPA On-Scene Coordinator (OSC)	Gregory B. DeAngelis USEPA Region II 2890 Woodbridge Aveuue Edison, NJ 08837 732-906-6874
ERCS Response Manager	Stan Gable 800-670-3079 (pager)
ERCS Project Safety Officer	TBD
START Representatives	Roy F. Weston, Inc. 1090 King Georges Post Road Suite 201 Edison, NJ 08837 (908) 225-6116
Health and Safety Manager	Robert A. Brooks, CSP 609-588-6423 (office) 800-818-2185 (pager)
ERCS Director, Health and Safety/ Project CIH	Kevin McMahon, M.S., CIH 609-588-6375 (office) 609-421-7523 (pager)
ERCS Vice President, Health and Safety	Fred Halvorsen, Ph.D., PE, CIH 800-231-7031

3.0 JOB SAFETY ANALYSIS

This section outlines the potential chemical and physical hazards which workers may be exposed to during work on this project. This is a representative list of hazardous materials present at this site. Other chemicals may be present at the site which have not yet been identified. Unless a material is identified by a valid label, it shall be considered as unknown, and handled as such.

3.1 CHEMICAL HAZARDS

The primary routes of exposure for corrosives, flammables and paints (toluene) are inhalation and skin contact with liquids mist and/or vapor. The primary routes of exposure for incinerator ash (lead) are inhalation of dust and particulates. Exposure to these substances may occur during drum handling, overpacking, drum sampling and related HAZ-CAT activities.

CHEMICAL	EXPOSURE ROUTES	PEL/ TLV	HEALTH HAZARDS/ PHYSICAL HAZARDS
Lead	Inhalation, ingestion	0.050 mg/m^3	Weakness, insomnia; loss of appetite, loss of weight, abdominal pain; anemia; tremors; weakness of wrists/ ankles; kidney damage; low blood pressure
			Incompatable with strong oxidizers, hydrogen peroxide and acids
Corrosive Alkali, e.g., Sodium Hydroxide	Skin, eye, inhalation, ingestion	0.5 mg/m^3	A strong corrosive agent to all body tissues; permanent blindness can result from eye contact; deep ulcer formation on skin
			Releases large quantities of heat in contact with water; reacts violently with acids; releases toxic gases in contact with metals, arsenic; can cause fires, explosions in contact with organic peroxides and toxic gases
Corrosive Acid, e.g., Sulfuric Acid	Skin, eye, inhalation, ingestion	1mg/m^3	A severe corrosive agent to all body tissues; permanent blindness can result from eye contact; inhalation produces pulmonary edema, bronchitis, and dental erosion
			Releases hydrogen gas, heat in contact with metals; reacts violently with bases; violent exothermic (heat releasing) reaction with water; produces sufficient heat to ignite combustable materials; chemical decomposition releases toxic gases
Paint solvent e.g., Toluene	Skin, eye, inhalation, ingestion	50 ppm SKIN	Fatigue, weakness, confusion, euphoria, dizziness, headache, dilated pupils, insomnia, numbness/tingling in hands, feet, dermatitis
			Reacts with strong oxidizers; flammable liquid; releases toxic gases during combustion

3.1.1 Lead Contamination/Federal Lead Standard

The Federal lead standard 29 CFR 1910.1025, requires the following worker protection programs be in place if airborne lead exposure exceeds the "action level" 30 micrograms per cubic meter: A biological monitoring program which tests workers for blood lead and zinc protoporphryn of workers exposed above the "action level." Provide clean change facilities with separate lockers for work and street clothing, the means to shower before leaving the workplace and a clean area for breaks and lunch. A laundry (on-site) is required, to treat contaminated water from the washing of uniforms or a commercial facility that is capable of handling lead contaminated uniforms and clothing. Lead contaminated clothing going off site must be bagged and properly labeled as lead contaminated clothing; "CAUTION: CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED LEAD WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS". A written respiratory protection program (also required under HAZWOPER 29 CFR 1910.120, See Section 5.14.1 of this HASP).

Personnel will be removed from the work site and placed under observation immediately if the following initial symptoms occur:

- Dizziness or stupor
- Nausea, headaches, or cramps
- Irritation of the eyes, nose, or throat
- Euphoria
- Chest pains and coughing
- Rashes or burns

3.2 PHYSICAL HAZARDS

To minimize physical hazards, standard safety protocols will be followed at all times. Failure to follow safety protocols will result in expulsion of the employee from the site. All personnel shall be familiar with the physical hazards presented by each of the tasks they perform. Task specific hazard analyses are provided in Section 3.4. These hazard analysis shall be reviewed prior to beginning each task and periodically throughout the task. It must be noted that these activity hazard analyses are general in nature. It is the responsibility of the RM to revise and adapt them as necessary to reflect site specific conditions.

The RM and PSO will observe the general work practices of each crew member and equipment operator, and enforce safe procedures to minimize physical hazards. Hard hats, safety glasses, and steel-toe safety boots are required in all active work areas of the site.

3.3 ENVIRONMENTAL HAZARDS

Environmental factors such as weather, wild animals, insects, and irritant plants may pose a hazard when performing outdoor tasks. The PSO and RM will take necessary actions to alleviate these hazards should they arise.

3.3.1 Heat Stress

The combination of warm ambient temperature and protective clothing increases the potential for heat stress. Heat stress disorders include:

- Heat rash
- Heat cramps
- Heat exhaustion
- Heat stroke

Heat stress prevention is outlined in procedure 3-4 of the OHM Corporation Health and Safety Procedures Manual. This information will be reviewed during safety meetings. Workers are encouraged to increase consumption of water and electrolyte-containing beverages; e.g. Gatorade. Heat stress can be prevented by assuring an adequate work/rest schedule. Guidelines are presented below.

It is recommended that workers break a minimum of every 2 hours for 10-15 minute rest periods ambient when temperatures exceed 65 degrees F and protective clothing is worn. More frequent breaks are necessary as the temperatures and level of protection are increased (see table below).

AMBIENT TEMPERATURE	NO CHEMICAL PROTECTIVE CLOTHING (LEVEL D)	PROTECTION LEVELS C/B/A
90° F or above	After 45 minutes of work	After 15 minutes of work
87.5 F-90 F	After 60 minutes of work	After 30 minutes of work
82.5-87.5 F	After 90 minutes of work	After 60 minutes of work
77.5-82.5 F	After 120 minutes of work	After 90 minutes of work
72.5-77.5 F	After 150 minutes of work	After 120 minutes of work

A work/rest schedule can be calculated based on heat stress monitoring results. Monitoring consists of taking the radial pulse of a worker for 30 seconds immediately after exiting the work area. The frequency of monitoring is provided herein.

If the heart rate exceeds 110 beats per minute at the beginning of the rest period, shorten the next work cycle by 1/3 and keep the rest period the same. If the heart rate still exceeds 110 beats per minute at the next rest period, increase the following rest period by 1/3. The initial rest period should be at least 5 minutes.

Body temperature measured orally or through the ear canal may also be monitored to assess heat stress. Workers should not be permitted to continue work when their body temperature exceeds 100.4 F (38C). Monitoring should be conducted at the intervals given above.

Monitoring for heat stress will begin when the ambient temperature reaches or exceeds 65 degrees Fahrenheit, when wearing Level C PPE, or 80 degrees Fahrenheit for site activities performed in Level D.

Poison Ivy may be found at the site. It is highly recommended that all personnel entering into an area with poison ivy wear a minimum of a tyvek coverall, to avoid skin contact.

The majority of skin reactions following contact with offending plants are allergic in nature and characterized by:

- General symptoms of headache and fever
- Itching
- Redness
- A rash

Some of the most common and most severe allergic reactions result from contact with plants of the poison ivy group, including poison oak and poison sumac. Such plants produce severe rash characterized by redness, blisters, swelling, and intense burning and itching. The victim may develop a high fever and feel very ill. Ordinarily, the rash begins within a few hours after exposure, but may be delayed 24 to 48 hours.

Distinguishing Features of Poison Ivy Group Plants

The most distinctive features of poison ivy and poison oak are their leaves, which are composed of three leaflets each. Both plants have greenish-white flowers and berries that grow in clusters.

First Aid

a. Remove contaminated clothing; wash all exposed areas thoroughly with soap and water, followed by rubbing alcohol. 1% hydrocortisone cream (over-the-counter) will aid in healing and reducing itch.

b. Apply calamine or other soothing lotion if rash is mild.

c. Seek medical advice if a severe reaction occurs, or if there is a known history of previous sensitivity.

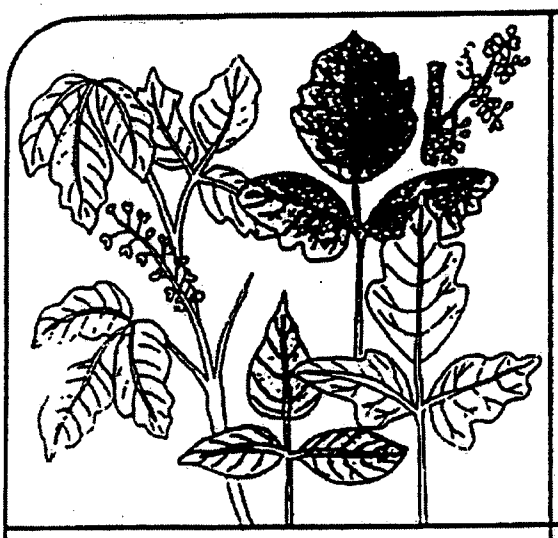
Contaminated Clothing

The irritating substances emitted by poison ivy group plants will remain on clothing for prolonged periods of time - up to weeks or months, if not washed thoroughly. It may be necessary to wash contaminated clothing separately and more than once before reusing.

- TICKS

Heavily vegetated areas of a site may have ticks. It is highly recommended that all personnel walking through such areas wear a minimum of a tyvek and latex boot covers. The ticks will stand out against the light colors. A tick repellent or insect containing DEET is also recommended.

FIGURE 3.1
POISONOUS PLANTS

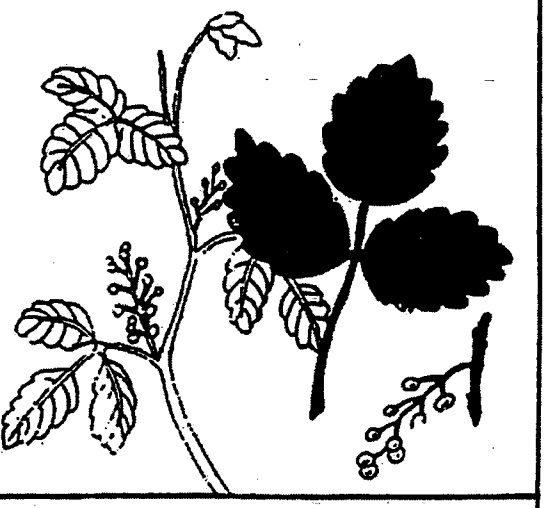


COMMON POISON IVY
(RHUS RADICANS)

- Grows as a small plant, a vine, and a shrub.
- Grows everywhere in the United States except California and parts of adjacent states. Eastern oak leaf poison ivy is one of its varieties.
- Leaves always consist of three glossy leaflets.
- Also known as three-leaf ivy, poison creeper, climbing sumac, poison oak, markweed, picry, and mercury.

WESTERN POISON OAK
(RHUS DIVERSILOBA)

- Grows in shrub and sometimes vine form.
- Grows in California and parts of adjacent states.
- Sometimes called poison ivy, or yeara.
- Leaves always consist of three leaflets.



POISON SUMAC
(RHUS VERNIX)

- Grows as a woody shrub or small tree from 5 to 25 feet tall.
- Grows in most of eastern third of United States.
- Also known as swamp sumac, poison elder, poison ash, poison dogwood, and thunderwood.

Ticks can transmit several diseases, including Rocky Mountain spotted fever, a disease that occurs in the eastern portion of the United States as well as the western portion, and Lyme disease. Ticks adhere tenaciously to the skin or scalp . There is some evidence that the longer an infected tick remains attached, the greater is the chance that it will transmit disease.

First Aid

a. Carefully (slowly and gently) remove the tick with tweezers, taking care that all parts are removed.

b. With soap and water, thoroughly, but gently, scrub the area from which the tick has been removed, because disease germs may be present on the skin; also wipe the bite area with an antiseptic.

c. If you have been bitten, place the tick in a jar labeled with the date, location of the bite, and the location acquired. If any symptom appears, such as an expanding red rash, contact a physician immediately.

- LYME DISEASE

Lyme disease may cause a number of medical conditions, including arthritis, that can be treated if you recognize the symptoms early and see your doctor. Early signs may include a flu-like illness, an expanding skin rash and joint pain. If left untreated, Lyme disease can cause serious nerve and heart problems as well as a disabling type of arthritis.

You are more likely to spot early signs of Lyme disease rather than see the tick or its bite. This is because the tick is so small (about the size of the head of a common pin or a period on this page and a little larger after they fill with blood), you may miss it or signs of a bite. However, it is also easy to miss the early symptoms of Lyme disease.

In its early stage, Lyme disease may be a mild illness with symptoms like the flu. It can include a stiff neck, chills, fever, sore throat, headache, fatigue, and joint pain. But this flu-like illness is usually out of season, commonly happening between May and October when ticks bite.

Most people develop a large, expanding skin rash around the area of the bite. Some people may get more than one rash. The rash may feel hot to the touch and may be painful. Rashes vary in size, shape, and color, but often look like a red ring with a clear center. The outer edges expand in size. Its easy to miss the rash and the connection between the rash and the tick bite. The rash develops from three days to as long as a month after the tick bite. Almost one third of those with Lyme disease never get the rash.

Joint or muscle pain may be another early sign of Lime disease. These aches and pains may be easy to confuse with the pain that comes from other types of arthritis. However, unlike many other types of arthritis, this pain seems to move or travel from joint to joint.

In later stages, Lyme disease may be confused with other medical problems. These problems can develop months to years after the first tick bite.

Early treatment of Lyme disease symptoms with antibiotics can prevent the more serious medical problems of later stages. If you suspect that you have symptoms of Lime disease, contact your doctor.

Lyme disease can cause problems with the nervous system that look like other diseases. These include symptoms of stiff neck, severe headache, and fatigue usually linked to meningitis. They may also include pain and drooping of the muscles on the face, called Bell's Palsy. Lyme disease can also mimic symptoms of multiple sclerosis or other types of paralysis.

Lyme disease can also cause serious but reversible heart problems, such as irregular heart beat. Finally, Lyme disease can result in a disabling, chronic type of arthritis that most often affects the knees. Treatment is more difficult and less successful in later stages. Researchers think these more serious problems may be linked to how the body's defense or immune system responds to the infection.

3.3.3 Noise

Hearing protection is required for workers operating or working near heavy equipment, where the noise level is greater than 85 dbA (Time Weighted Average) as well as personnel working around heavy equipment. The PSO will determine the need and appropriate testing procedures, (i.e., sound level meter and/or dosimeter) for noise measurement.

3.4 VEHICLE SAFETY MANAGEMENT

Motor vehicle incidents are the number one cause of occupational fatalities. OHM employees involved in the operation and use of OHM and/or leased or rented vehicles will comply with the OHM Vehicle Management Policy. OHM requires employees to use seat belts at all times when traveling in OHM owned or leased/rented vehicles. The SS and/or SSO will develop a parking area plan, including backing vehicles into parking spaces, using spotters for backing vehicles and policy mandated vehicle inspections.

OHM employees are expected to incorporate safe actions and preparations to avoid vehicle accidents and personal injury during work and off hours. Breaks should be planned into lengthy job mobilizations and demobilizations, including rotation of drivers at regular intervals. If parking areas are busy or crowded and more than one worker is traveling in the same vehicle, one worker should remain outside the vehicle as it leaves the parking space to assist the driver with traffic observation. Vehicles traveling before dawn and at dusk in rural or wooded areas should be prepared for wild life, e.g. deer, crossing roadways.

OHM employees arriving at work areas should park vehicles away from delivery, heavy equipment and vehicle loading, unloading locations to prevent parked vehicles from damage by various deliveries. Heavy equipment operators should inspect areas and request vehicles to be moved or spotters used if necessary, to maneuver equipment in tight areas. Employees who observe near misses or potential risks to parked or moving vehicles must report these to the SS or SSO immediately.

OHM employees are expected to use the vehicle inspection form and check/test the safety systems on the vehicle on a daily basis. Check the following: brakes, mirrors, seat belts, tires, leakage from the undercarriage, lights and turn signals. Vehicles with safety deficiencies must be reported immediately and not driven until properly repaired. Vehicles running errands from different project sites should have telephone numbers of the job site in the vehicle in case calls for assistance are required.

Because of the different ways alcohol can affect behavior, even in very small amounts, the best and safest course is not to drink before driving. At OHM, a driver with blood alcohol concentration (BAC) over 0.04% is considered to be under the influence and subject to disciplinary action. Personnel involved in motor vehicle incidents are subject to drug and alcohol testing.

Weather conditions can have a profound effect on driving. On slippery roads, drive more slowly. Stop and turn with care. Keep several car lengths from other vehicles. At speeds in excess of 35 mph, the chances of hydroplaning increase with speed. In general, keep back 1 car length for every 10 mph to prevent striking the car ahead.

In the event of a vehicle incident, notify your Site Supervisor ***immediately*** and complete all required reports.

3.5 TASK-SPECIFIC JOB SAFETY ANALYSES (JSA)

This section of the Site-Specific HASP provides a breakdown of the hazards and control measures for each principal task. These Job Safety Analyses are general in nature and must be made project specific by the Response Manager prior to each task. The JSAs will be field checked by the supervisor on an ongoing basis and revised as necessary. All revisions will be communicated to the work crew.

3.5.1	JOB SAFETY ANALYSIS FOR SITE PREPARATION			
AIR MONITORING: "ACTION LEVELS" PID: <1 PPM, LEVEL D; ≥1 PPM <5 PPM, LEVEL C; >5 PPM LEVEL B MINI-RAM: <1.25 MG/M³ LEVEL D; ≥ 1.25 MG/M³ <5.0 MG/M³, LEVEL C; >5.0 MG/M³, LEVEL B INTEGRATED AIR SAMPLING: (LEAD) <0.03MG/M³ LEVEL D, >0.03MG/M³ ≤ 2.5MG/M³, LEVEL C, >2.5MG/M³, LEVEL B LEL/O_2: ≥10% LEL, STOP WORK, EVACUATE; <20.9% O_2, LEVEL B; <19.5% O_2, MECHANICAL VENTELATION, CONSTANT MONITORING				
Task Breakdown	**Potential Hazards**	**Hazard Control Measures**	**Personal Protective Equipment**	**Air Monitoring Devices**
Equipment/ Facility Set-up	Slips, Trips, Falls	• Clear walkways work areas of equipment, tools, vegetation, excavated material and debris • Mark, identify, or barricade other obstructions		
	Electrical Shock	• De-energize or shut off utility lines at their source before work begins • Use double insulated or properly grounded electric power-operated tools • Maintain tools in a safe condition • Provide an equipment-grounding conductor program or employ ground-fault circuit interrupters • Use qualified electricians to hook up electrical circuits • Inspect all extension cords daily for structural integrity, ground continuity, and damaged insulation • Cover or elevate electric wire or flexible cord passing through work areas to protect from damage • Keep all plugs and receptacles out of water • Use approved water-proof, weather-proof type if exposure to moisture is likely • Inspect all electrical power circuits prior to commencing work • Follow Lockout-Tagout procedures in accordance with OHM Health and Safety Procedures # 6-4		
	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		

3.5.1	JOB SAFETY ANALYSIS FOR SITE PREPARATION			
AIR MONITORING: "ACTION LEVELS" PID: <1 PPM, LEVEL D; ≥1 PPM <5 PPM, LEVEL C; >5 PPM LEVEL B MINI-RAM: <1.25 MG/M³ LEVEL D; ≥ 1.25 MG/M³ <5.0 MG/M³, LEVEL C; >5.0 MG/M³, LEVEL B INTEGRATED AIR SAMPLING: (LEAD) <0.03MG/M³ LEVEL D, >0.03MG/M³ ≤ 2.5MG/M³, LEVEL C, >2.5MG/M³, LEVEL B LEL/O_2: ≥ 10% LEL, STOP WORK, EVACUATE; <20.9% O_2, LEVEL B; <19.5% O_2, MECHANICAL VENTELATION, CONSTANT MONITORING				
Task Breakdown	**Potential Hazards**	**Hazard Control Measures**	**Personal Protective Equipment**	**Air Monitoring Devices**
Equipment/ Facility Set-up (Continued)	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use	Leather gloves	
	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period)	Ear plugs	
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with OHM Health and Safety Procedures # 3-4, 3-5 • Provide fluids to prevent worker dehydration		

3.5.2	JOB SAFETY ANALYSIS FOR DRUM AND CONTAINER HANDLING/OVERPACKING			
AIR MONITORING: "ACTION LEVELS" PID: <1 PPM, LEVEL D; ≥ 1 PPM <5 PPM, LEVEL C; >5 PPM LEVEL B MINI-RAM: <1.25 MG/M³ LEVEL D; ≥ 1.25 MG/M³ <5.0 MG/M³, LEVEL C; >5.0 MG/M³, LEVEL B INTEGRATED AIR SAMPLING: (LEAD) <0.03MG/M³ LEVEL D, >0.03MG/M³ ≤ 2.5MG/M³, LEVEL C, >2.5MG/M³, LEVEL B LEL/O_2: ≥10% LEL, STOP WORK, EVACUATE; <20.9% O_2, LEVEL B; <19.5% O_2, MECHANICAL VENTELATION, CONSTANT MONITORING				
Task Breakdown	**Potential Hazards**	**Hazard Control Measures**	**Personal Protective Equipment**	**Air Monitoring Devices**
Staging/ Overpacking Drums and Containers	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		
	Caught In/ Between Moving Parts	• Identify and understand parts of equipment which may cause crushing, pinching, rotating or similar motions • Assure guards are in place to protect from these parts of equipment during operation • Provide and use proper work gloves when the possibility of pinching, or other injury may be caused by moving/ handling large or heavy objects • Maintain all equipment in a safe condition • Keep all guards in place during use • De-energize and locked-out machinery before maintenance or service		
	Slips, Trips, Falls	• Clear walkways, work areas of equipment, vegetation, excavated material, tools, and debris • Mark, identify, or barricade other obstructions		

3.5.2	JOB SAFETY ANALYSIS FOR DRUM AND CONTAINER HANDLING/OVERPACKING			
AIR MONITORING: "ACTION LEVELS" PID: <1 PPM, LEVEL D; ≥ 1 PPM <5 PPM, LEVEL C; >5 PPM LEVEL B MINI-RAM: <1.25 MG/M³ LEVEL D; ≥ 1.25 MG/M³ <5.0 MG/M³, LEVEL C; >5.0 MG/M³, LEVEL B INTEGRATED AIR SAMPLING: (LEAD) <0.03MG/M³ LEVEL D, >0.03MG/M³ ≤ 2.5MG/M³, LEVEL C, >2.5MG/M³, LEVEL B LEL/O_2: ≥10% LEL, STOP WORK, EVACUATE; <20.9% O_2, LEVEL B; <19.5% O_2, MECHANICAL VENTELATION, CONSTANT MONITORING				
Task Breakdown	**Potential Hazards**	**Hazard Control Measures**	**Personal Protective Equipment**	**Air Monitoring Devices**
Staging/ Overpacking Drums and Containers (Continued)	Fire/ Explosion	• Eliminate sources of ignition from the work area • Prohibit smoking in work areas • Provide ABC (or equivalent) fire extinguishers for all work, flammable storage areas; fuel powered generators and compressors • Store flammable liquids in well ventilated areas • Prohibit storage, transfer of flammable liquids in plastic containers • Post "NO SMOKING" signs • Store combustible materials away from flammables • Store, all compressed gas cylinders upright, caps in place when not in use • Separate Flammables and Oxidizers by 20 feet minimum		
	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use	Leather gloves	
	Struck by/ Against Heavy Equipment, Protruding Objects	• Use reflective warning vests worn when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Understand and review hand signals	Warning vests, Hard hat, Safety glasses	
	Inhalation and Contact with Hazardous Substances	• Provide workers proper skin, eye and respiratory protection based on the exposure hazards present • Review hazardous properties of site contaminants with workers before operations begin	Tyvek coveralls, nitrile gloves, neoprene boots (see Section 5.0 HASP)	PID, MiniRAM, Air Sample Pump

3.5.2	JOB SAFETY ANALYSIS FOR DRUM AND CONTAINER HANDLING/OVERPACKING			
AIR MONITORING: "ACTION LEVELS" PID: <1 PPM, LEVEL D; ≥1 PPM <5 PPM, LEVEL C; >5 PPM LEVEL B MINI-RAM: <1.25 MG/M³ LEVEL D; ≥ 1.25 MG/M³ <5.0 MG/M³, LEVEL C; >5.0 MG/M³, LEVEL B INTEGRATED AIR SAMPLING: (LEAD) <0.03MG/M³ LEVEL D, >0.03MG/M³ ≤ 2.5MG/M³, LEVEL C, >2.5MG/M³, LEVEL B LEL/O_2: ≥10% LEL, STOP WORK, EVACUATE; <20.9% O_2, LEVEL B; <19.5% O_2, MECHANICAL VENTELATION, CONSTANT MONITORING				
Task Breakdown	**Potential Hazards**	**Hazard Control Measures**	**Personal Protective Equipment**	**Air Monitoring Devices**
Staging/ Overpacking Drums and Containers (Continued)	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with OHM Health and Safety Procedures #3-4, 3-5 • Provide fluids to prevent worker dehydration		

3.5.3	JOB SAFETY ANALYSIS FOR DRUM AND CONTAINER SAMPLING			
AIR MONITORING: "ACTION LEVELS" PID: <1 PPM, LEVEL D; ≥1 PPM <5 PPM, LEVEL C; >5 PPM LEVEL B MINI-RAM: <1.25 MG/M³ LEVEL D; ≥ 1.25 MG/M³ <5.0 MG/M³, LEVEL C; >5.0 MG/M³, LEVEL B INTEGRATED AIR SAMPLING: (LEAD) <0.03MG/M³ LEVEL D, >0.03MG/M³ ≤ 2.5MG/M³, LEVEL C, >2.5MG/M³, LEVEL B LEL/O_2: ≥10% LEL, STOP WORK, EVACUATE; <20.9% O_2, LEVEL B; <19.5% O_2, MECHANICAL VENTELATION, CONSTANT MONITORING				
Task Breakdown	**Potential Hazards**	**Hazard Control Measures**	**Personal Protective Equipment**	**Air Monitoring Devices**
Drum and Container Sampling	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use	Wizard gloves or equivalent	
	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		
	Slips, Trips, Falls	• Clear walkways, work areas of equipment, tools, vegetation, excavated material, and debris • Mark, identify, or barricade other obstructions		
	Inhalation and Contact with Hazardous Substances	• Provide workers proper skin, eye and respiratory protection based on the exposure hazards present • Review hazardous properties of site contaminants with workers before operations begin	Tyvek coveralls, neoprene boots, nitrile gloves (see Section 5.0 HASP)	PID, Mini-RAM, Air Sample Pump
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with OHM Health and Safety Procedures # 3-4, 3-5 • Provide fluids to prevent worker dehydration		

3.5.4	JOB SAFETY ANALYSIS FOR TANK REMOVAL, CLEAN AND SCRAP

AIR MONITORING: "ACTION LEVELS"
PID: <1 PPM, LEVEL D; ≥1 PPM <5 PPM, LEVEL C; >5 PPM LEVEL B
MINI-RAM: <1.25 MG/M³ LEVEL D; ≥ 1.25 MG/M³ <5.0 MG/M³, LEVEL C; >5.0 MG/M³, LEVEL B
INTEGRATED AIR SAMPLING: (LEAD) <0.03MG/M³ LEVEL D, >0.03MG/M³ ≤ 2.5MG/M³, LEVEL C, >2.5MG/M³, LEVEL B
LEL/O_2: ≥10% LEL, STOP WORK, EVACUATE; <20.9% O_2, LEVEL B; <19.5% O_2, MECHANICAL VENTELATION, CONSTANT MONITORING

Task Breakdown	Potential Hazards	Hazard Control Measures	Personal Protective Equipment	Air Monitoring Devices
Excavation of Tank	Underground Utilities	• Identify all underground utilities around the excavation site before work commences • Cease work immediately if unknown utility markers are uncovered		
	Struck By/ Against Heavy Equipment	• Use reflective warning vests worn when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Understand and review hand signals	Warning vest, Hard hat, Safety glasses	
	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use	Wizard or similar cut resistant gloves	
	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period)	Ear plugs	

3.5.4	JOB SAFETY ANALYSIS FOR TANK REMOVAL, CLEAN AND SCRAP			
AIR MONITORING: "ACTION LEVELS" PID: <1 PPM, LEVEL D; ≥1 PPM <5 PPM, LEVEL C; >5 PPM LEVEL B MINI-RAM: <1.25 MG/M³ LEVEL D; ≥ 1.25 MG/M³ <5.0 MG/M³, LEVEL C; >5.0 MG/M³, LEVEL B INTEGRATED AIR SAMPLING: (LEAD) <0.03MG/M³ LEVEL D, >0.03MG/M³ ≤ 2.5MG/M³, LEVEL C, >2.5MG/M³, LEVEL B LEL/O_2: ≥10% LEL, STOP WORK, EVACUATE; <20.9% O_2, LEVEL B; <19.5% O_2, MECHANICAL VENTELATION, CONSTANT MONITORING				
Task Breakdown	**Potential Hazards**	**Hazard Control Measures**	**Personal Protective Equipment**	**Air Monitoring Devices**
Excavation of Tank (Continued)	Excavation Wall Collapse	• Construct diversion ditches or dikes to prevent surface water from entering excavation • Provide good drainage of area adjacent to excavation • Collect ground water/rain water from excavation and dispose of properly • Store excavated material at least 2 feet from the edge of the excavation; prevent excessive loading of the excavation face • Provide sufficient stairs, ladders, or ramps when workers enter excavations over 4 feet in depth • Place ladders no more than 25 feet apart laterally • Treat excavations over 4 feet deep as confined spaces • Complete confined space permit entry procedure • Monitor atmosphere for flammable/toxic vapors, and oxygen deficiency • Slope, bench, shore, or sheet excavations over 5 feet deep if worker entry is required • Assign a competent person to inspect, decide soil classification, proper sloping, the correct shoring, or sheeting • Inspect excavations (when personnel entry is required) daily, whenever conditions change • Provide at least two means of exit for personnel working in excavations.	Hard hat, Safety glasses	
	Slips, Trips, Falls	• Clear, walkways of equipment, vegetation, excavated material, tools and debris • Mark, identify, or barricade other obstructions		
	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		

3.5.4	JOB SAFETY ANALYSIS FOR TANK REMOVAL, CLEAN AND SCRAP

AIR MONITORING: "ACTION LEVELS"
PID: <1 PPM, LEVEL D; ≥1 PPM <5 PPM, LEVEL C; >5 PPM LEVEL B
MINI-RAM: <1.25 MG/M³ LEVEL D; ≥ 1.25 MG/M³ <5.0 MG/M³, LEVEL C; >5.0 MG/M³, LEVEL B
INTEGRATED AIR SAMPLING: (LEAD) <0.03MG/M³ LEVEL D, >0.03MG/M³ ≤ 2.5MG/M³, LEVEL C, >2.5MG/M³, LEVEL B
LEL/O_2: ≥10% LEL, STOP WORK, EVACUATE; <20.9% O_2, LEVEL B; <19.5% O_2, MECHANICAL VENTELATION, CONSTANT MONITORING

Task Breakdown	Potential Hazards	Hazard Control Measures	Personal Protective Equipment	Air Monitoring Devices
Excavation of Tank (Continued)	Inhalation and Contact with Hazardous Substances	• Provide workers proper skin, eye and respiratory protection based on the exposure hazards present • Review hazardous properties of site contaminants with workers before operations begin	Tyvek coveralls, nitrile gloves, neoprene boots (see Section 5.0 HASP)	LEL/O_2, PID, Mini-RAM, Air Sample Pump
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with OHM Health and Safety Procedures # 3-4, 3-5 • Provide fluids to prevent worker dehydration		
Tank Clean/Scrap	Fire/ Explosion	• Eliminate sources of ignition from the work area • Prohibit smoking • Provide ABC (or equivalent) fire extinguishers in all work, flammable storage areas and with fuel powered generators and compressors • Store flammable liquids in well ventilated areas • Prohibit storage, transfer of flammable liquids in plastic containers • Post "NO SMOKING" signs • Store combustible materials away from flammables • Store all compressed gas cylinders upright, caps in place when not in use • Separate Flammables and Oxidizers by 20 feet minimum		

3.5.4	JOB SAFETY ANALYSIS FOR TANK REMOVAL, CLEAN AND SCRAP

AIR MONITORING: "ACTION LEVELS"
PID: <1 PPM, LEVEL D; ≥1 PPM <5 PPM, LEVEL C; >5 PPM LEVEL B
MINI-RAM: <1.25 MG/M³ LEVEL D; ≥ 1.25 MG/M³ <5.0 MG/M³, LEVEL C; >5.0 MG/M³, LEVEL B
INTEGRATED AIR SAMPLING: (LEAD) <0.03MG/M³ LEVEL D, >0.03MG/M³ ≤ 2.5MG/M³, LEVEL C, >2.5MG/M³, LEVEL B
LEL/O_2: ≥10% LEL, STOP WORK, EVACUATE; <20.9% O_2, LEVEL B; <19.5% O_2, MECHANICAL VENTELATION, CONSTANT MONITORING

Task Breakdown	Potential Hazards	Hazard Control Measures	Personal Protective Equipment	Air Monitoring Devices
Tank Clean/Scrap (Continued)	Flammable, Toxic, Oxygen deficient Atmospheres	• Test vessel atmosphere for flammable/toxic vapors, and oxygen deficiency • Obtain Confined Space Entry Permit signed by Supervisor/Safety Officer • De-energize, lock-out and tag all energized equipment • Provide written rescue plan • Review hazardous properties of site contaminants with entrants and safety observer • Review emergency procedures before work commences • Provide safety observer outside vessel • Wear proper level of PPE for the type of atmospheric contaminants • Use body harness, safety belt with tripod winch for possible rescue		LEL/O_2
	Burns	• Use proper work gloves, face shield/safety goggles, and leather apron to protect workers from skin burns when welding, cutting, and burning	Face shield, Safety goggles	
	Inhalation and Contact with Hazardous Substances	• Provide workers proper skin, eye and respiratory protection based on the exposure hazards present • Review hazardous properties of site contaminants with workers before operations begin	Tyvek coveralls, nitrile gloves, neoprene boots (see Section 5.0 HASP)	LEL/O_2, PID
	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use	Wizard or similar cut resistant gloves	

3.5.4	JOB SAFETY ANALYSIS FOR TANK REMOVAL, CLEAN AND SCRAP			
AIR MONITORING: "ACTION LEVELS" PID: <1 PPM, LEVEL D; ≥ 1 PPM <5 PPM, LEVEL C; >5 PPM LEVEL B MINI-RAM: <1.25 MG/M³ LEVEL D; ≥ 1.25 MG/M³ <5.0 MG/M³, LEVEL C; >5.0 MG/M³, LEVEL B INTEGRATED AIR SAMPLING: (LEAD) <0.03MG/M³ LEVEL D, >0.03MG/M³ ≤ 2.5MG/M³, LEVEL C, >2.5MG/M³, LEVEL B LEL/O_2: ≥10% LEL, STOP WORK, EVACUATE; <20.9% O_2, LEVEL B; <19.5% O_2, MECHANICAL VENTELATION, CONSTANT MONITORING				
Task Breakdown	**Potential Hazards**	**Hazard Control Measures**	**Personal Protective Equipment**	**Air Monitoring Devices**
Backfilling	Struck By/ Against Heavy Equipment	• Use reflective warning vests worn when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Understand and review posted hand signals	Warning vest, hard hat, safety glasses	
	Slips, Trips, Falls	• Clear, walkways of equipment, vegetation, excavated material, tools and debris • Mark, identify, or barricade other obstructions		
	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use	Leather gloves	
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with OHM Health and Safety Procedures # 3-4, 3-5 • Provide fluids to prevent worker dehydration		

3.5.5	JOB SAFETY ANALYSIS FOR HAZCAT ACTIVITIES			
AIR MONITORING: "ACTION LEVELS" PID: <1 PPM, LEVEL D; ≥1 PPM <5 PPM, LEVEL C; >5 PPM LEVEL B MINI-RAM: <1.25 MG/M³ LEVEL D; ≥ 1.25 MG/M³ <5.0 MG/M³, LEVEL C; >5.0 MG/M³, LEVEL B INTEGRATED AIR SAMPLING: (LEAD) <0.03MG/M³ LEVEL D, >0.03MG/M³ ≤ 2.5MG/M³, LEVEL C, >2.5MG/M³, LEVEL B LEL/O_2: ≥10% LEL, STOP WORK, EVACUATE; <20.9% O_2, LEVEL B; <19.5% O_2, MECHANICAL VENTELATION, CONSTANT MONITORING				
Task Breakdown	**Potential Hazards**	**Hazard Control Measures**	**Personal Protective Equipment**	**Air Monitoring Devices**
HAZCAT Testing	Inhalation and Contact with Hazardous Substances	• Provide workers proper skin, eye and respiratory protection based on the exposure hazards present • Provide workers an isolated work area, operating fume hood ventelation system • Review contaminant chemical MSDSs with workers before operations begin	Face shield and goggles, sample gloves, lab coat or apron (Section 5.0 HASP)	PID
	Fire/ Explosion	• Follow all procedures as provided in the current edition of OHM Compatibility Testing Manual • Use required equipment for testing materials as required by the current edition of OHM Compatibility Testing Manual • Use only 5g sample for compatibility testing • Oxidizer and metals compounds are very reactive materials; it is recommended that these materials not be compatibility tested when field analytical data is not available • Keep samples and drums out of direct sunlight and heat • Conduct hazcat testing within lab fume hood • Test atmosphere with combustible gas meter • Eliminate sources of ignition from the work area • Prohibit smoking in HAZCAT work area • Provide ABC (or equivalent) fire extinguishers in all work areas • Store flammable liquids in well ventilated areas • Prohibit storage, transfer of flammable liquids in plastic containers • Post "NO SMOKING" signs • Store combustible materials away from flammables • Separate Hazard class materials by compatible groups		
	Slips, Trips, Falls	• Clear walkways of equipment, tools, and stored materials • Maintain housekeeping in HAZCAT work area		

3.5.5	JOB SAFETY ANALYSIS FOR HAZCAT ACTIVITIES			
AIR MONITORING: "ACTION LEVELS" PID: <1 PPM, LEVEL D; ≥1 PPM <5 PPM, LEVEL C; >5 PPM LEVEL B MINI-RAM: <1.25 MG/M³ LEVEL D; ≥ 1.25 MG/M³ <5.0 MG/M³, LEVEL C; >5.0 MG/M³, LEVEL B INTEGRATED AIR SAMPLING: (LEAD) <0.03MG/M³ LEVEL D, >0.03MG/M³ ≤ 2.5MG/M³, LEVEL C, >2.5MG/M³, LEVEL B LEL/O_2: ≥10% LEL, STOP WORK, EVACUATE; <20.9% O_2, LEVEL B; <19.5% O_2, MECHANICAL VENTELATION, CONSTANT MONITORING				
Task Breakdown	**Potential Hazards**	**Hazard Control Measures**	**Personal Protective Equipment**	**Air Monitoring Devices**
HAZCAT Testing (Continued)	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain lab equipment and testing materials in a safe condition	Wizard or similar cut resistant gloves	

3.5.6	JOB SAFETY ANALYSIS FOR EQUIPMENT DECONTAMINATION			
AIR MONITORING: "ACTION LEVELS" PID: <1 PPM, LEVEL D; ≥1 PPM <5 PPM, LEVEL C; >5 PPM LEVEL B MINI-RAM: <1.25 MG/M³ LEVEL D; ≥ 1.25 MG/M³ <5.0 MG/M³, LEVEL C; >5.0 MG/M³, LEVEL B INTEGRATED AIR SAMPLING: (LEAD) <0.03MG/M³ LEVEL D, >0.03MG/M³ ≤ 2.5MG/M³, LEVEL C, >2.5MG/M³, LEVEL B LEL/O_2: ≥10% LEL, STOP WORK, EVACUATE; <20.9% O_2, LEVEL B; <19.5% O_2, MECHANICAL VENTELATION, CONSTANT MONITORING				
Task Breakdown	**Potential Hazards**	**Hazard Control Measures**	**Personal Protective Equipment**	**Air Monitoring Devices**
Heavy Equipment & Vehicles	Slips, Trips, Falls	• Clear walkways, work areas of equipment, vegetation, tools and debris • Mark, identify, or barricade other obstructions		
	Struck by/Against Heavy Equipment, Protruding Objects, & Splashes	• Use reflective warning vests when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Wear hard hats, safety glasses with side shields, or goggles with splash shields and steel-toe safety boots • Understand and review hand signals	Warning vests hard hat safety glasses, goggles and face shield	
	Inhalation and Contact with Hazardous Substances	• Provide workers proper skin, eye and respiratory protection based on the exposure hazards present • Review hazardous properties of site contaminants with workers before operations begin	PVC rain suit or Tyvek coveralls, latex gloves, latex boots (See Section 5.0 HASP)	
	Burns	• Use proper gloves, face shield/safety goggles, shin and toe guards, and splash suits to protect workers from skin burns and injury when operating laser (high pressure washers)	Goggles and face shield, shin and toe guards	
	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		
	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use	Leather gloves	

3.5.6	JOB SAFETY ANALYSIS FOR EQUIPMENT DECONTAMINATION			
AIR MONITORING: "ACTION LEVELS" PID: <1 PPM, LEVEL D; ≥1 PPM <5 PPM, LEVEL C; >5 PPM LEVEL B MINI-RAM: <1.25 MG/M³ LEVEL D; ≥ 1.25 MG/M³ <5.0 MG/M³, LEVEL C; >5.0 MG/M³, LEVEL B INTEGRATED AIR SAMPLING: (LEAD) <0.03MG/M³ LEVEL D, >0.03MG/M³ ≤ 2.5MG/M³, LEVEL C, >2.5MG/M³, LEVEL B LEL/O_2: ≥10% LEL, STOP WORK, EVACUATE; <20.9% O_2, LEVEL B; <19.5% O_2, MECHANICAL VENTELATION, CONSTANT MONITORING				
Task Breakdown	**Potential Hazards**	**Hazard Control Measures**	**Personal Protective Equipment**	**Air Monitoring Devices**
Heavy Equipment & Vehicles (Continued)	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period)	Ear plugs	
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress in accordance with OHM Health and Safety Procedures # 3-4, 3-5 • Provide fluids to prevent worker dehydration		

4.0 WORK AND SUPPORT AREAS

To prevent migration of contamination from personnel and equipment work areas will be clearly specified prior to beginning operations. Each work area will be divided as suggested by the NIOSH/OSHA/USCG/EPA'S document titled, "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities."

- An Exclusion or "hot" Zone (EZ)
- A Contamination-Reduction Zone (CRZ)
- A Support Zone (SZ)

4.1 EXCLUSION ZONE

The EZ is the area suspected of contamination and presents the greatest potential for worker exposure. Personnel entering the area must wear the mandated level of protection for that area. In certain instances, different levels of protection will be required depending on the tasks and monitoring performed within that zone. The EZ for this project will be interior of the CSD building, all interior/exterior drum and ash locations, the interior of UST excavations and tank interiors unless otherwise stipulated by the PSO.

4.2 CONTAMINATION-REDUCTION ZONE

The CRZ or transition zone will be established between the EZ and SZ. In this area, personnel will begin the sequential decontamination process required to exit the EZ. To prevent off-site migration of contamination and for personnel accountability, all personnel will enter and exit the EZ through the CRZ. The CRZ for this project will be the access/egress routes to/from the EZ and the personnel and equipment decontamination stations.

4.3 SUPPORT ZONE

The SZ serves as a clean, control area. Operational support facilities are located within the SZ. Normal work clothing and support equipment are appropriate in this zone. Contaminated equipment, or clothing will not be allowed in the SZ. The support facilities should be located upwind of site activities. There will be a clearly marked controlled access point from the SZ into the CRZ and EZ that is monitored closely by the PSO and the RM to ensure proper safety protocols are followed. The SZ will be the crew trailer, office trailers and the parking and visitor accessways to the project site.

4.4 SITE CONTROL LOG

A log of all personnel visiting, entering or working on the site shall be maintained in the main office trailer location. The log will record the date, name, company or agency, and time entering or exiting the site.

No visitor will be allowed in the EZ without showing proof of training and medical certification, per 29 CFR 1910.120(e), (f). Visitors will supply their own boots and respiratory equipment, if required. Visitors will attend a site orientation given by the PSO and sign the HASP.

4.5 GENERAL

The following items are requirements to protect the health and safety of workers and will be discussed in the safety briefing prior to initiating work on the site.

- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand to mouth transfer and ingestion of contamination is prohibited in the EZ and CRZs.
- Hands and face must be washed upon leaving the EZ and before eating, drinking, chewing gum or tobacco and smoking or other activities which may result in ingestion of contamination.
- A buddy system will be used. Hand signals will be established to maintain communication.
- During site operations, each worker will consider himself as a safety backup to his partner. Off-site personnel provide emergency assistance. All personnel will be aware of dangerous situations that may develop.
- Visual contact will be maintained between buddies on site when performing hazardous duties.
- No personnel will be admitted to the site without the proper safety equipment, training, and medical surveillance certification.
- All personnel must comply with established safety procedures. Any staff member who does not comply with safety policy, as established by the PSO or the RM, will be immediately dismissed from the site.
- Proper decontamination procedures must be followed before leaving the site.
- All employees and visitors must sign in and out of the site.

5.0 PROTECTIVE EQUIPMENT

This section addresses the various levels of personal protective equipment (PPE) to be used at this job site.

5.1 ANTICIPATED PROTECTION LEVELS

TASK	PROTECTION LEVEL	COMMENTS/MODIFICATIONS
Site Setup	Level D	Hardhat, steel-toe work boots, safety eye wear (safety glasses with side shields or goggles and face shield if splash or flying particles are likely) and hearing protection >85 dBA
Drum/ Container Handling, Overpacking, Staging	Level B	Saranex-coated Tyvek coveralls, nitrile gloves, neoprene boots and hearing protection >85 dBA
Drum/ Container Sampling	Level B	Saranex-coated Tyvek coveralls, nitrile gloves, neoprene boots and hearing protection >85 dBA
Drum/ Container Sampling, Solids	Level C	Tyvek coveralls, nitrile gloves, neoprene boots and hearing protection >85 dBA; upgrade to level B if air monitoring action levels are exceeded and/or other level B work is occurring in the same work area
UST Excavation, Scrap, Cleaning	Level C	Tyvek coveralls, nitrile gloves, neoprene boots and hearing protection >85 dBA; upgrade to level B if air monitoring action levels are exceeded and/or other level B work is occurring in the same work area
UST Cleaning (personnel entry)	Level B	Saranex-coated Tyvek coveralls, nitrile gloves, neoprene boots and hearing protection >85 dBA; continuous air monitoring
HAZ-CAT Activities	Level D	Lab coat and/or apron, latex gloves, working fume hood
Decontamination	Level D+	PVC rain suit or Tyvek coveralls, latex gloves, latex boots
SZ Activities not otherwise Classified	Level D	

5.2 PROTECTION LEVEL DESCRIPTIONS

This sections lists the minimum requirements for each protection level. Modification to these requirements will be noted above.

5.2.1 Level D

Level D consists of the following:

- Safety glasses with side shields
- Hard hat
- Steel-toed work boots
- Work clothing as prescribed by weather

5.2.2 Modified Level D

Modified Level D consists of the following:

- Safety glasses with side shields
- Hard hat
- Steel-toed work boots
- Nitrile, neoprene, PVC, or latex booties
- Outer nitrile, neoprene, or PVC gloves over latex sample gloves
- Face shield (when projectiles or splashes pose a hazard)
- Tyvek coverall [Saranex Tyveks (Sarans) for handling liquids; PVC overalls will be required when workers have a potential to be exposed to acid contaminated liquids or sludges.]

5.2.3 Level C

Level C consists of the following:

- Full-face, air-purifying respirator with appropriate cartridges
- Hooded Tyvek coveralls and Saranex Tyveks (Sarans) (PVC overalls will be required when workers have a potential to be exposed to acid contaminated liquids or sludges.)
- Hard hat
- Steel-toed work boots
- Nitrile, neoprene, or latex overboots
- Nitrile, neoprene, or PVC gloves over latex sample gloves
- Face shield (when projectiles or splashes pose a hazard)

5.2.4 Level B

Level B protection consists of the items required for Level C protection with the exception that a supplied air respirator is used in place of the air-purifying respirator.

5.2.5 Level A

Level A protection consists of the items required for Level B protection with the addition of a fully-encapsulating, vapor-proof suit capable of maintaining positive pressure.

5.3 SUPPLIED-AIR RESPIRATORS

If air monitoring shows that Level B protection is needed, personnel will wear Airline respirators with 5-minute egress bottles. Personnel requiring Level "B" protection and high mobility will wear SCBA units.

5.4 BREATHING-AIR QUALITY

Code of Federal Regulations 29 CFR 1910.134 states breathing air will meet the requirement for Grade D breathing air as described in the ANSI/CGA Specification G-7.1-1989. A certificate of analysis from vendors of breathing air shall be obtained in order to show that the air meets this standard.

5.5 AIR-PURIFYING RESPIRATORS

A NIOSH approved full face respirator with appropriate air purifying cartridges will be used for level C work.

5.6 RESPIRATOR CARTRIDGES

The crew members working in Level C will wear respirators equipped with approval for the following contaminants:

- Organic vapors <1,000 ppm
- Chlorine gas <10 ppm
- Hydrogen chloride <50 ppm
- Sulfur dioxide <50 ppm
- Dusts, fumes and mists with a TWA <0.05 mg/m^3
- Asbestos-containing dusts and mists
- Radionuclides

5.7 CARTRIDGE CHANGES

All cartridges will be changed a minimum of once daily or more frequently if personnel begin to experience increased inhalation resistance or breakthrough of a chemical warning property.

5.8 INSPECTION AND CLEANING

Respirators will be checked periodically by a qualified individual and inspected before each use by the wearer. All respirators and associated equipment will be decontaminated and hygienically cleaned after use.

5.9 FIT TESTING

Annual respirator fit tests are required of all personnel wearing negative-pressure respirators. The test will use isoamyl acetate or irritant smoke. The fit test must be for the style and size of the respirator to be used.

5.10 FACIAL HAIR

No personnel who have facial hair which interferes with the respirator's sealing surface will be permitted to wear a respirator and will not be permitted to work in areas requiring respirator use.

5.11 CORRECTIVE LENSES

Normal eyeglasses cannot be worn under full-face respirators because the temple bars interfere with the respirator's sealing surfaces. For workers requiring corrective lenses, special spectacles designed for use with respirators will be provided.

5.12 CONTACT LENSES

Contact lenses will not be worn with any type of respirator.

5.13 MEDICAL CERTIFICATION

Only workers who have been certified by a physician as being physically capable of respirator usage will be issued a respirator. Personnel unable to pass a respiratory fit test or without medical clearance for respirator use will not be permitted to enter or work in areas on site that require respiratory protection. Employees shall receive a written physicians opinion that they are fit for general hazardous waste operations as per 29 CFR 1910.120(f)(7).

5.14 SITE SPECIFIC PERSONAL PROTECTIVE EQUIPMENT (PPE) PROGRAM

The primary objective of the PPE program is to ensure employee protection and to prevent employee exposure to site contaminants during site operations. Engineering controls are not feasible for many tasks and, therefore, require the use of PPE.

The RM will be responsible for implementing all aspects of the PPE program. This includes donning and doffing, temperature related stress monitoring, inspection, and decontamination (see Section 6.0). PPE selection is identified in Table 5.1 for each specified task. The RM in consultation with the PSO, if assigned, Health and Safety Manager, project CIH and the OSC will direct changes in PPE based on changing conditions. The site specific HASP will serve as written certification that the workplace was evaluated concerning PPE requirements. OHM Corporation's comprehensive PPE Program is described in Appendix D.

5.14.1 Site-Specific Respiratory Protection Program

The primary objective of respiratory protection is to prevent employee exposure to atmospheric contamination. When engineering measures to control contamination are not feasible, or while they are being implemented, personal respiratory protective devices will be used.

The criteria for determining respirator need have been evaluated based on the site contaminants; expected levels of protection are outlined in Section 5.1. Air monitoring will be conducted to confirm that respiratory protection levels are adequate (Section 7.0). All respirator users are OSHA trained in proper respirator use and maintenance. The RM and PSO will observe workers during respirator use for signs of stress. The RM, CIH, HSM, and PSO will also evaluate this HASP periodically to determine its continued effectiveness with regard to respiratory protection. All persons assigned to use respirators will have medical clearance to do so.

6.0 DECONTAMINATION PROCEDURES

This section describes the procedures necessary to ensure that both personnel and equipment are free from contamination when they leave the work site.

6.1 PERSONNEL DECONTAMINATION

Decontamination procedures will ensure that material which workers may have contacted in the EZ does not result in personal exposure and is not spread to clean areas of the site. This sequence describes the general decontamination procedures for Level C, Level B/Egress, and Level B/SCBA. The specific stages will vary depending on the site, the task, the protection level, etc. Dry decontamination may be used if appropriate and there is insufficient space to support a full decontamination station as delineated with the steps below. The RM, or the PSO will ensure that the decontamination procedures are adequate.

Level C Decontamination

1. Go to end of EZ
2. a. Wash outer boots (Tingley or Robars) and stage to let dry; or
   b. Remove and discard latex booties
3. Remove outer gloves and discard
4. Remove outer suit (Saranex/polycoated/regular tyvek)
5. Remove outer sample gloves and discard
6. Cross into CRZ (dirty side of respirator wash area)
7. Remove inner suit and discard, (if applicable)
8. Remove and wash respirator (4 stages)
   a. Soap and water solution
   b. First rinse
   c. Disinfect respirator (1 cap full of bleach to 1 gallon of water)
   d. Final rinse
9. Hang respirator to dry
10. Remove inner sample gloves and discard
11. Wash face and hands

Level B Decontamination (Airline/Egress)

1. Go to end of EZ
2. a. Wash outer boots (Tingley or Robars) and stage to let dry; or
   b. Remove and discard latex booties
3. Remove outer gloves and discard
4. Cross into CRZ
5. Disconnect airline, remove egress system, and disconnect egress from mask
6. Stage egress bottle for cleaning
7. Remove outer suit
8. Remove outer sample gloves and discard
9. Move to respirator wash area, and wash egress mask and related hose line
   a. Soap and water solution
   b. First rinse

c. Disinfect respirator (1 cap full of bleach to 1 gallon of water)
d. Final rinse

10. Hang egress mask (upside down) and line to dry
11. Remove inner sample gloves and discard.
12. Wash face and hands

Level B Decontamination (SCBA)

1. Move to edge of EZ
2. Bottle change only
   a. Wash boots and gloves
   b. Move to edge of EZ and CRZ
   c. Remove face mask airline from regulator assembly
   d. Allow assistant to change bottle and reconnect face mask airline
   e. Return to EZ
3. a. Wash outer boots and stage to let dry (Tingley or Robars only); or
   b. Remove and discard latex booties
4. Remove and discard outer gloves
5. Disconnect from SCBA bottle and stage SCBA (NOTE: SCBA mask remains on)
6. Remove outer suit (Saranex/polycoated/regular tyvek)
7. Remove outer sample gloves and discard
8. Cross into CRZ
9. Remove inner suit (if applicable)
10. Move to respirator wash area and wash SCBA facepiece and hose line
    a. Soap and water solution
    b. First rinse
    c. Disinfect respirator (1 cap full of bleach to 1 gallon of water)
    d. Final rinse
11. Hang mask to dry
12. Remove inner sample gloves and discard
13. Wash face and hands

6.1.1 Suspected Contamination

Any employee suspected of sustaining skin contact with chemical materials will first use the emergency shower. Following a thorough drenching, the worker will proceed to the decontamination facility. Here the worker will remove clothing, shower, don clean clothing, and immediately be taken to the first-aid station. Medical attention will be provided as determined by the degree of injury.

6.1.2 Lead Exposure

OHM personnel are required to shower at the end of the work shift before leaving site. All visitors entering the EZ will be required to shower before leaving the site.

All OHM personnel and any visitors entering the EZ are prohibited from leaving the site at any time during the day without doffing site dedicated coveralls.

6.1.3 Personal Hygiene

Before any eating, smoking, or drinking, personnel will wash hands, arms, neck and face.

6.2 EQUIPMENT DECONTAMINATION

All contaminated equipment will be decontaminated before leaving the site. Decontamination procedures will vary depending upon the contaminant involved, but may include sweeping, wiping, scraping, hosing, or steaming the exterior of the equipment. Personnel performing this task will wear the proper PPE as prescribed by the PSO.

6.3 DISPOSAL

All decontamination liquids and disposable clothing will be treated as contaminated waste unless determined otherwise by accepted testing methods. Wastes will be disposed according to state and federal regulations.

7.0 AIR MONITORING

Air monitoring will be conducted in order to characterize personnel exposures and fugitive emissions from site contaminants. Principal contaminants of concern are listed in Section 3.0 of this HASP. The target compounds selected for air monitoring purposes for this site include VOCs and lead. Results of air monitoring will be used to ensure the proper selection of protective clothing and equipment, including respiratory protection, to protect on-site personnel and off-site receptors from exposure to unacceptable levels of site contaminants. Descriptions of air monitoring strategies, procedures and equipment are provided below. Modification of this plan, including additional monitoring, may be considered as judged necessary by the Project CIH, in conjunction with the HSM and PSO.

7.1 PERSONNEL AIR MONITORING

Personnel air monitoring at site will include direct reading methods as well as integrated sampling strategies. Air monitoring will be conducted during drum handling, overpacking and sampling activities.

7.1.1 Direct Reading Air Monitoring

During drum handling, overpacking and sampling activities and UST excavation, clean and scrap activities direct reading air monitoring will be performed in the EZ to determine exposure to workers. A Mini-RAM will be used to determine levels of airborne particulates. An particulate action level for lead in total particulates, will be established using the USEPA equation for calculating Particulate Action Levels. A PID will be used to determine airborneVOC levels. An LEL/0_2 will be required during excavation of 2 USTs to ensure that flammable vapors are not present. A summary of air monitoring information is provided in the table below.

Monitoring Device	Monitoring Location/ Personnel	Monitoring Frequency	Action Level	Action
PID	EZ Equipment Operator, Recovery Tech, Sample Tech, Chemist	Continuous during drum handling, overpacking and sampling activities and UST excavation, clean and scrap activities	< 1 ppm unknowns* 1-5 ppm unknowns* 5-500 ppm unknowns* >500 ppm unknowns*	Continue PID sampling Level C Level B Level A
LEL/O_2	Exclusion Zone (EZ) Equipment Operator, Recovery Tech, Sample Tech, Chemist	Continuous during drum handling, overpacking and sampling activities and UST excavation, clean and scrap activities	>10% LEL <20.8% O_2	Evacuate area, ventilate, upgrade to Level B if necessary, continue to monitor

Monitoring Device	Monitoring Location/ Personnel	Monitoring Frequency	Action Level	Action
Mini-Ram (total dust)	EZ area Equipment Operator, Recovery Tech, Sample Tech, Chemist	Continuous during drum handling, overpacking and sampling activities and UST excavation, clean and scrap activities	< 1.25 mg/m³(TWA) ≥ 1.25 mg/m³ - ≤ 5.0 mg/m³ (TWA) > 5.0 mg/m³ (TWA)	Level D Level C Level B

*Sustained levels above background for 5 minutes

7.1.2 Integrated Air Monitoring

Integrated air sampling for personnel exposure characterization will be performed during drum handling, overpacking and sampling activities. Samples will be collected on the most at risk Recovery Technician, Sample Technician and/or Chemist and Equipment Operator and/or Foreman. Sampling will be conducted for lead using NIOSH Method7300. A summary of air monitoring information is given in the Table below.

Monitoring Device	Monitoring Location/ Personnel	Monitoring Frequency	Action Level	Action
Air Sampling Pump NIOSH 7300	Breathing Zone/ Equipment Operator, Recovery Tech, Sample Tech, Chemist	1 Sample each worker; first 3 days of drum handling / sampling activities 1 Sample each worker; 1 day per week of additional drum handling / sampling activities	<.03mg/m³ ≥ .03 mg/m³ < 2.5 mg/m³ ≥ 2.5 mg/m³	LevelD Level C Level B

7.2 INSTRUMENTATION

The following is a description of the air monitoring equipment to be used at this site.

7.2.1 Photoionization Detector (PID)

7.2.1.1 Type and Operational Aspects

- PID Model PI 101 or equivalent
  - Principle of Operation
    - Ionization potential (IP) - The energy required to remove the outermost electron from a molecule; measured in electron volts (eV); characteristic property of a specific chemical.

- Photoionization - Using ultraviolet (UV) light to remove the outermost electron from a molecule.
- Energy of UV light (10.2, 9.5, 11.7 eV) must be equal to or greater than the IP to photoionize the molecule.
- Fan or pump is used to draw air into the detector where the contaminants are exposed to a UV light source (lamp).
- Ions are collected on a charged plate and produce a current directly proportional to the number of ionized molecules; current is amplified and displayed on the meter.

7.2.1.2 Calibration Method/Frequencies

The PID Model PI 101 is designed for trace gas analysis in ambient air and is calibrated at HNU with certified standards of benzene, vinyl chloride, and isobutylene. Other optional calibrations are available (e.g., ammonia, ethylene oxide, H_2S, etc.).

OHM will use a PID with a 10.2 eV lamp. This lamp has been determined to be most responsive to the contaminants on site. Optional probes containing lamps of 9.5 and 11.7 eV are interchangeable in use within individual read-out assemblies for different applications.

The approximate span settings for the probe that would give different readings of the amounts of trace gas of a particular species in a sample are based upon the relative photoionization sensitivities of various gases twice daily (beginning and end of shift).

It is recommended that calibration be checked twice each day (beginning and end of shift). The PSO will record and log such calibration information into an air monitoring notebook.

7.2.1.3 Preventative Maintenance

Maintenance of the PID Model PI 101 consists of cleaning the lamp and ion chamber, and replacement of the lamp or other component parts or sub-assemblies.

7.2.2 Lower Explosive Limit/Oxygen (LEL/O_2)

7.2.2.1 Types and Operational Aspects

- MSA Watchman LEL/O2 Meter or equivalent
  - Principle of Operation
    - Oxygen detector uses an electrochemical sensor; produces a minute electric current proportional to the oxygen content.
    - Combustible gas indicators use a combustion chamber containing a filament that ignites flammable vapors; filament is heated or coated with a catalyst (platinum) to facilitate combustion.

- Filament is part of a balanced resistor circuit; combustion in the chamber causes the filament temperature to increase; results in increased filament resistance.

- Change in the filament's resistance causes an imbalance in the circuit proportional to the percent of the lower explosive limit (% LEL).

- Concentrations greater than the LEL and lower than the upper explosive limit (UEL) will read 100% LEL; combustible atmosphere present.

- Concentrations greater than the UEL will read above 100% LEL then return to zero. (NOTE: Some devices have catchment mechanisms which will cause the needle to remain at 100% until the meter is reset.) This type of response indicates the gas mixture is too rich to burn and is not combustible. The danger is that the addition of air to the gas mixture could bring it into the flammable range (less than the UEL).

- Oxygen meter set at the factory to alarm at 19.5% (oxygen deficient atmosphere) combustible gas meter set by the user to alarm at 10% LEL.

7.2.2.2 Calibration Methods/Frequencies

Before the calibration of the combustible gas indicator can be checked, the unit must be in operating condition. The combustible gas indicator (LEL) is normally calibrated on pentane as being representative of the flammability characteristics of most commonly encountered combustible gases. The meter scale is calibrated from zero to 100% LEL, which corresponds in actual volume concentrations of 0 to approximately 14% pentane in air. A booklet of response curves is supplied with the Watchman Meter. These curves may be used to interpret meter readings when sampling combustible gases other than pentane.

It is recommended that calibration be checked before and after using each time. The SSO will record and log such calibration information into an air monitoring notebook. The O_2 meter is calibrated by adjusting the O_2 control knob to 20.8% while the meter is operated in a fresh air atmosphere.

7.2.2.3 Preventative Maintenance

The primary maintenance of unit is the rechargeable 2.4 volt nickel cadmium battery. Recommended charging time is 16 hours. It may be left on charge for longer periods without damaging the battery. The battery sometimes will not supply full power capacity after repeated partial use between charging. Therefore, it is recommended that the battery be exercised at least once a month by running for eight to 10 hours and recharged. If the instrument has not been used for 30 days, the battery should be charged prior to use.

7.2.3 Portable Total Dust Monitor

7.2.3.1 Type and Operational Aspects

- Real-Time Aerosol Monitor (Mini Ram Model PDM-3 and Model Pr100 Data Ram)

  - Principle of Operation

    - Detection of light in the near infrared region back-scattered to a sensor (photovoltaic detector) by airborne particulate in a sensing volume

- The higher the dust concentration the more back-scattering of light to the sensor, resulting in increased readings

- Device calibrated at the factory against an air sampling filter/gravimetric analysis reference method

7.2.3.2 Calibration Methods/Frequencies

There is no calibration method or procedure for calibrating the mini-ram monitor. However, it is recommended that the mini-ram monitor be re-zeroed once a week. During a zero check, the sampled air passes through the purge air filter and dryer to effect a self-cleaning of the optical chamber.

7.2.3.3 Preventative Maintenance

Maintenance of the mini-ran consists of replacement of filters and desiccant; battery replacement; and cleaning of the optical detection assembly.

7.2.4 Integrated Air Monitoring Program

7.2.4.1 Type and Operational Aspects

- Gilian Air Sampling Pump (or equivalent)

  - Principle of Operation

    - Air sampling pump is calibrated to draw a specified air flow rate (liters per minute) for a designated period of time. DDVP and Parathion will be drawn for 10 hours and Malithion will be drawn for 5 hours.

    - Volume of air sampled is then calculated as follows:

      Flow rate (liter/min.) x sample time (min.) = sample volume (liters)

- Use a bubble meter to calibrate air sampling pump; pump equipped with a rotameter that shows the flow rate during the sampling period.

- Equipped with a rechargeable battery for 8-hour average sampling times; must be recharged for at least 16 hours.

  - Collection Media: 37 mm MCE cassette

7.2.4.2 Calibration Methods/Frequencies

Flow rate calibration can be accomplished by using primary standard soap and the Gilibrator Calibrator (or equivalent). The Gilibrator calibrator allows rapid flow rate determination with direct read-out on the built-in display.

Connect the sampler to the calibrator, press the ON push button, and then push the plunger to start a bubble up the flow cell. The flow rate is automatically calculated and shown on the display. Subsequent readings are averaged with the previous readings. It is recommended that calibration of the sampler be checked prior to the start of and after each sampling period.

7.2.4.3 Preventative Maintenance

The Gilian air sampling pump should not require special maintenance or adjustments under normal conditions. However, as with all instruments, the sampling pump does require some basic care. Basic maintenance of the consists of filter replacement, installing and removing battery packs, storage conditions, and electronic control assembly.

7.3 AIR MONITORING LOG

The PSO will ensure that all air-monitoring data is logged into a monitoring notebook. Data will include instrument used, wind direction, work process, etc. The OHM Project CIH and/or HSM may periodically review this data.

7.4 CALIBRATION REQUIREMENTS

The PID, LEL/O_2 meter and sampling pumps required with fixed-media air sampling will be calibrated daily before and after use. A separate log will be kept detailing date, time, span gas, or other standard, and name of person performing the calibration.

7.5 AIR MONITORING RESULTS

Air monitoring results will be posted for personnel inspection, and will be discussed during morning safety meetings.

8.0 EMERGENCY RESPONSE AND CONTINGENCY PLAN

8.1 PRE-EMERGENCY PLANNING

Prior to engaging in construction/remediation activities at the site, the RM will plan for possible emergency situations and have available adequate supplies and manpower to respond. In addition site personnel will receive training during the site orientation concerning proper emergency response procedures.

The following situations would warrant implementation of the emergency plan:

Fire/Explosion	• The potential for human injury exists. • Toxic fumes or vapors are released. • The fire could spread on site or off site and possibly ignite other flammable materials or cause heat-induced explosions. • The use of water and/or chemical fire suppressants could result in contaminated run-off. • An imminent danger of explosion exists.
Spill or Release of Hazardous Materials	• The spill could result in the release of flammable liquids or vapors, thus causing a fire or gas explosion hazard. • The spill could cause the release of toxic liquids or fumes in sufficient quantities or in a manner that is hazardous to or could endanger human health.
Natural Disaster	• A rain storm exceeds the flash flood level. • The facility is in a projected tornado path or a tornado has damaged facility property. • Severe wind gusts are forecasted or have occurred and have caused damage to the facility.
Medical Emergency	• Overexposure to hazardous materials. • Trauma injuries (broken bones, severe lacerations/bleeding, burns). • Eye/skin contact with hazardous materials. • Loss of consciousness. • Heat stress (Heat stroke). • Cold stress (Hypothermia). • Heart attack. • Respiratory failure. • Allergic reaction.

The following measures will be taken to assure the availability of adequate equipment and manpower resources:

- Sufficient equipment and materials will be kept on site and dedicated for emergencies only. The inventory will be replenished after each use.
- On-site emergency responders will be current in regards to training and medical surveillance programs. Copies of all applicable certificates will be kept on file for on-site personnel required to respond.

- It will be the responsibility of the emergency coordinator to brief the on-site response team on anticipated hazards at the site. The emergency coordinator shall also be responsible for anticipating and requesting equipment that will be needed for response activities.

- Emergency response activities will be coordinated with the Local Emergency Management Agency (EMA) in compliance with SARA Title III requirements.

Communications will be established prior to commencement of any activities at the remediation site. Communication will be established so that all responders on site have availability to all pertinent information to allow them to conduct their activities in a safe and healthful manner. The primary communication device will be two-way radios. Air horns may be used to alert personnel of emergency conditions. A telephone will be located at the command post to summon assistance in an emergency.

Primary communication with local responders in the event of an emergency will be accomplished using commercial telephone lines.

8.2 EMERGENCY RECOGNITION AND PREVENTION

Because unrecognized hazards may result in emergency incidents, it will be the responsibility of the RM and Project Safety Officer (PSO), through daily site inspections and employee feedback (Safety Observation Program, daily safety meetings, and job safety analyses) to recognize and identify all hazards that are found at the site. These may include:

Chemical Hazards	• Materials at the site • Materials brought to the site
Physical Hazards	• Fire/explosion • Slip/trip/fall • Electrocution • Confined space • IDLH atmospheres • Excessive noise
Mechanical Hazards	• Heavy equipment • Stored energy system • Pinch points • Electrical equipment • Vehicle traffic
Environmental Hazards	• Electrical Storms • High winds • Heavy Rain/Snow • Temperature Extremes (Heat/Cold Stress) • Poisonous Plants/Animals

Once a hazard has been recognized, the RM and/or the PSO will take immediate action to prevent the hazard from becoming an emergency. This may be accomplished by the following:

- Daily safety meeting
- Task-specific training prior to commencement of activity
- Lock-out/tag-out

- Personal Protective Equipment (PPE) selection/use
- Written and approved permits for hot work, confined space
- Trenching/shoring procedure
- Air monitoring
- Following all OHM standard operating procedures
- Practice drills for fire, medical emergency, and hazardous substances spills

TABLE 8.1
EMERGENCY TELEPHONE NUMBERS

Local Agencies -- Newark, New Jersey	9-1-1
Fire Department	201-733-7491
Police	201-733-6245
Hospital - St James Hospital *Directions*: From site follow Doremus Ave., north and turn Left on Roanoke Ave., at the 'T' turn Left on Avenue P and follow to Foundry Rd., turn Right on Foundry Rd to Raymond Blvd., turn Left on Raymond Blvd., follow to Market St and turn Left on Market St, four blocks to Jackson St and turn Right on Jackson St., follow Jackson Street to Lafayette St., Hospital entrance is on the left	201-589-1300
Regional Poison Control Center	800-962-1253
State Agencies	
NJDEPE Emergency Response	609-727-7172
Federal Agencies	
EPA Region Branch Response Center, Edison, NJ	732-548-8730
EPA OSC - Greg DeAngelis	732-9066874
Agency for Toxic Substances and Disease Registry	404-639-0615 (24 HR)
National Response Center	800-424-8802
OHM Personnel	
Project Manager - Howard Perlmutter	609-588-6442
District Health and Safety Manager - Bob Brooks	609-588-6423
Director, Health and Safety - Kevin McMahon	609-588-6375
OHM Corporation (24 hour)	800-537-9540

Additional Phone #'s in Section 2 this HASP

8.3 PERSONNEL ROLES, LINES OF AUTHORITY, AND COMMUNICATIONS

This section of the ERCP describes the various roles, responsibilities, and communication procedures that will be followed by personnel involved in emergency responses.

The primary emergency coordinator for this site is the OSC. In the event an emergency occurs and the emergency coordinator is not on site, the RM will serve as the emergency coordinator until he arrives. The emergency coordinator will determine the nature of the emergency and take appropriate action as defined by this ERCP.

The emergency coordinator will implement the ERCP immediately as required. The decision to implement the plan will depend upon whether the actual incident threatens human health or the environment.

Immediately after being notified of an emergency incident, the emergency coordinator or his designee will evaluate the situation to determine the appropriate action.

8.3.1 Responsibilities and Duties

This section describes the responsibilities and duties assigned to the emergency coordinator.

It is recognized that the structure of the "Incident Command System" will change as additional response organizations are added. Personnel will follow procedures as directed by the fire department, LEPC, State and Federal Agencies as required. The OSC, in coordination with the local Fire Department chief will assume the role of Incident Commander. Additional on-site personnel may be added to the Site Emergency Response Team as required to respond effectively.

8.3.2 On-Site Emergency Coordinator Duties

The on-site emergency coordinator is responsible for implementing and directing the emergency procedures. All emergency personnel and their communications will be coordinated through the emergency coordinator. Specific duties are as follows:

- Identify the source and character of the incident, type and quantity of any release. Assess possible hazards to human health or the environment that may result directly from the problem or its control.
- Discontinue operations in the vicinity of the incident if necessary to ensure that fires, explosions, or spills do not recur or spread to other parts of the site. While operations are dormant, monitor for leaks, pressure build-up, gas generation, or ruptures in valves, pipes, or other equipment, where appropriate.
- Notify local Emergency Response Teams if their help is necessary to control the incident. Table 8.1 provides telephone numbers for emergency assistance.
- Direct on-site personnel to control the incident until, if necessary, outside help arrives. Specifically:
- Ensure that the building or area where the incident occurred and the surrounding area are evacuated and shut off possible ignition sources, if appropriate. The Emergency Response Team is responsible for directing site personnel such that they avoid the area of the incident and leave emergency control procedures unobstructed.
- If fire or explosion is involved, notify local Fire Department.
- Have protected personnel, in appropriate PPE, on standby for rescue.

If the incident may threaten human health or the environment outside of the site, the emergency coordinator should immediately determine whether evacuation of area outside of the site may be necessary and, if so, notify the Police Department and the Office of Emergency Management.

When required, notify the National Response Center. The following information should be provided to the National Response Center:

- Name and telephone number
- Name and address of facility
- Time and type of incident
- Name and quantity of materials involved, if known
- Extent of injuries
- Possible hazards to human health or the environment outside of the facility.

The emergency telephone number for the National Response Center is 800-424-8802.

If hazardous waste has been released or produced through control of the incident, ensure that:

- Waste is collected and contained.
- Containers of waste are removed or isolated from the immediate site of the emergency.
- Treatment or storage of the recovered waste, contaminated soil or surface water, or any other material that results from the incident or its control is provided.
- Ensure that no waste that is incompatible with released material is treated or stored in the facility until cleanup procedures are completed.
- Ensure that all emergency equipment used is decontaminated, recharged, and fit for its intended use before operations are resumed.
- Record time, date, and details of the incident, and submit a written report to the USEPA Regional Administrator. Report is due to USEPA within 15 days of the incident.

8.4 SAFE DISTANCES AND PLACES OF REFUGE

The emergency coordinator for all activities will be the OSC. No single recommendation can be made for evacuation or safe distances because of the wide variety of emergencies which could occur. Safe distances can only be determined at the time of an emergency based on a combination of site and incident-specific criteria. However, the following measures are established to serve as general guidelines.

In the event of minor hazardous materials releases (small spills of low toxicity), workers in the affected area will report initially to the contamination reduction zone. Small spills or leaks (generally less than 55 gallons) will require initial evacuation of at least 50 feet in all directions to allow for cleanup and to prevent exposure. After initial assessment of the extent of the release and potential hazards, the emergency coordinator or his designee will determine the specific boundaries for evacuation. Appropriate steps such as caution tape, rope, traffic cones, barricades, or personal monitors will be used to secure the boundaries.

In the event of a major hazardous material release (large spills of high toxicity/greater than 55 gallons), workers will be evacuated from the building/site. Workers will assemble at the entrance to the site for a head count by their foremen and to await further instruction.

If an incident may threaten the health or safety of the surrounding community, the public will be informed and, if necessary, evacuated from the area. The emergency coordinator, or his designee will inform the proper agencies in the event that this is necessary. Telephone numbers are listed in Table 8.1.

Places of refuge will be established prior to the commencement of activities. These areas must be identified for the following incidents:

- Chemical release
- Fire/explosion
- Power loss
- Medical emergency
- Hazardous weather

In general, evacuation will be made to the crew trailers, unless the emergency coordinator determines otherwise. It is the responsibility of the emergency coordinator to determine when it is necessary to evacuate personnel to off-site locations.

In the event of an emergency evacuation, all the employees will gather at the entrance to the site until a head count establishes that all are present and accounted for. No one is to leave the site without notifying the emergency coordinator.

8.5 EVACUATION ROUTES AND PROCEDURES

All emergencies require prompt and deliberate action. In the event of an emergency, it will be necessary to follow an established set of procedures. Such established procedures will be followed as closely as possible. However, in specific emergency situations, the emergency coordinator may deviate from the procedures to provide a more effective plan for bringing the situation under control. The emergency coordinator is responsible for determining which situations require site evacuation.

8.5.1 Evacuation Signals and Routes

Two-way radio communication and an air horn will be used to notify employees of the necessity to evacuate an area or building involved in a release/spill of a hazardous material. Each crew supervisor will have a two way radio. A base station will be installed in the OHM office trailer to monitor for emergencies. Total site evacuation will be initiated only by the emergency coordinator, however, in his absence, decision to preserve the health and safety of employees will take precedence. Evacuation routes will be posted in each outside work area. Signs inside buildings will be posted on walls or other structural element of a building. Periodic drills will be conducted to familiarize each employee with the proper routes and procedures.

8.5.2 Evacuation Procedures

In the event evacuation is necessary, the following actions will be taken:

- The emergency signal will be activated.
- No further entry of visitors, contractors, or trucks will be permitted. Vehicle traffic within the site will cease in order to allow safe exit of personnel and movement of emergency equipment.
- Shut off all machinery if safe to do so.

- ALL on-site personnel, visitors, and contractors in the support zone will assemble at the entrance to the site for a head count and await further instruction from the emergency coordinator.

- ALL persons in the exclusion zone and contamination reduction zone will be accounted for by their immediate crew leaders (e.g., foreman). Leaders will determine the safest exits for employees and will also choose an alternate exit if the first choice is inaccessible.

- During exit, the crew leader should try to keep the group together. Immediately upon exit, the crew leader will account for all employees in his crew.

- Upon completion of the head count, the crew leader will provide the information to the emergency coordinator.

- Contract personnel and visitors will also be accounted for.

- The names of emergency response team members involved will be reported to the emergency spill control coordinator.

- A final tally of persons will be made by the emergency coordinator or designee. No attempt to find persons not accounted for will involve endangering lives of OHM or other employees by re-entry into emergency areas.

- In all questions of accountability, immediate crew leaders will be held responsible for those persons reporting to them. Visitors will be the responsibility of those employees they are seeing. Contractors and truck drivers are the responsibility of the Response Manager. The security guard will aid in accounting for visitors, contractors, and truckers by reference to sign-in sheets available from the guard shack.

- Personnel will be assigned by the emergency coordinator to be available at the main gate to direct and brief emergency responders.

- Re-entry into the site will be made only after clearance is given by the emergency coordinator. At his direction, a signal or other notification will be given for re-entry into the facility.

- Drills will be held periodically to practice all of these procedures and will be treated with the same seriousness as an actual emergency.

8.6 EMERGENCY SPILL RESPONSE PROCEDURES AND EQUIPMENT

In the event of an emergency involving a hazardous material spill or release, the following general procedures will be used for rapid and safe response and control of the situation. Emergency contacts found in Table 8.1 provide a quick reference guide to follow in the event of a major spill.

8.6.1 Notification Procedures

If an employee discovers a chemical spill or process upset resulting in a vapor or material release, he or she will immediately notify the on-site emergency coordinator.

On-site Emergency Coordinator will obtain information pertaining to the following:

- The material spilled or released.
- Location of the release or spillage of hazardous material.
- An estimate of quantity released and the rate at which it is being released.
- The direction in which the spill, vapor or smoke release is heading.
- Any injuries involved.
- Fire and/or explosion or possibility of these events.
- The area and materials involved and the intensity of the fire or explosion.

This information will help the on-site emergency coordinator to assess the magnitude and potential seriousness of the spill or release.

8.6.2 Procedure for Containing/Collecting Spills

The initial response to any spill or discharge will be to protect human health and safety, and then the environment. Identification, containment, treatment, and disposal assessment will be the secondary response.

If for some reason a chemical spill is not contained within a dike or sump area, an area of isolation will be established around the spill. The size of the area will generally depend on the size of the spill and the materials involved. If the spill is large (greater than 55 gallons) and involves a tank or a pipeline rupture, an initial isolation of at least 100 ft. in all directions will be used. Small spills (less than or equal to 55 gallons) or leaks from a tank or pipe will require evacuation of at least 50 ft. in all directions to allow cleanup and repair and to prevent exposure. When any spill occurs, only those persons involved in overseeing or performing emergency operations will be allowed within the designated hazard area. If possible the area will be roped or otherwise blocked off.

If the spill results in the formation of a toxic vapor cloud (by reaction with surrounding materials or by outbreak of fire) and its release (due to high vapor pressures under ambient conditions), further evacuation will be enforced. In general an area at least 500 feet wide and 1,000 feet long will be evacuated downwind if volatile materials are spilled. (Consult the DOT Emergency Response Guide for isolation distances for listed hazardous materials.)

If an incident may threaten the health or safety of the surrounding community, the public will be informed and possibly evacuated from the area. The on-site emergency coordinator will inform the proper agencies in the event this is necessary. (Refer to Table 8.1)

As called for in regulations developed under the Comprehensive Environmental Response Compensation Liability Act of 1980 (Superfund), a spill of a pound or more of any hazardous material for which a reportable quantity has not been established and which is listed under the Solid Waste Disposal Act, Clean Air Act, Clean Water Act, or TSCA shall be reported.

Clean up personnel will take the following measures:

- Make sure all unnecessary persons are removed from the hazard area.
- Put on protective clothing and equipment.
- If a flammable material is involved, remove all ignition sources, and use spark and explosion proof equipment for recovery of material.

- Remove all surrounding materials that could be especially reactive with materials in the waste. Determine the major components in the waste at the time of the spill.
- If wastes reach a storm sewer, try to dam the outfall by using sand, earth, sandbags, etc. If this is done, pump this material out into a temporary holding tank or drums as soon as possible.
- Place all small quantities of recovered liquid wastes (55 gallons or less) and contaminated soil into drums for incineration or removal to an approved disposal site.
- Spray the spill area with foam, if available, if volatile emissions may occur.
- Apply appropriate spill control media (e.g. clay, sand, lime, etc.) to absorb discharged liquids.
- For large spills, establish diking around leading edge of spill using booms, sand, clay or other appropriate material. If possible, use diaphragm pump to transfer discharged liquid to drums or holding tank.

8.6.3 Emergency Response Equipment

The following equipment will be staged in the support zone and throughout the site, as needed, to provide for safety and first aid during emergency responses.

- ABC-type fire extinguisher
- First-aid kit, industrial size
- Eyewash/safety shower
- Emergency signal horn
- Self contained breathing apparatus (two)
- Stretcher/backboard

In addition to the equipment listed above, OHM maintains direct reading instrumentation that may be used in emergency situations to assess the degree of environmental hazard. This equipment will only be used by the Project Safety Officer or other specially trained personnel. This equipment will be stored, charged and ready for immediate use in evaluating hazardous chemical concentrations. The equipment will be located at the OHM office trailer.

EQUIPMENT NAME	APPLICATION
Portable H-NU Photoionization Meter	Measures selected inorganic and organic chemical concentrations
MSA Oxygen and Combustible Gas Meter	Measures oxygen and combustible gas levels

8.6.4 Personal Protective Equipment

A supply of two (minimum) SCBAs will be located in the support zone for use in emergency response to hazardous materials releases. They will be inspected at least monthly, according to OSHA requirements. In addition, all emergency response personnel will have respirators available for use with cartridge selection determined by the Project Safety Officer based on the results of direct reading instruments. Emergency response

personnel will also be provided with protective clothing as warranted by the nature of the hazardous material and as directed by the Project Safety Officer.

8.6.5 Emergency Spill Response Clean-Up Materials and Equipment

A sufficient supply of appropriate emergency response clean-up and personal protective equipment will be inventoried and inspected, visually, on a weekly basis.

The materials listed below may be kept on site for spill control, depending on the types of hazardous materials present on site. The majority of this material will be located in the support zone, in a supply trailer or storage area. Small amounts will be placed on pallets and located in the active work areas.

- Sand or clay to solidify/absorb liquid spills.
- Appropriate solvents e.g. CITRIKLEEN, for decontamination of structures or equipment.

The following equipment will be kept on site and dedicated for spill cleanup:

- Plastic shovels for recovering corrosive and flammable materials.
- Sausage-shaped absorbent booms for diking liquid spills, drains, or sewers.
- Sorbent sheets (diapers) for absorbing liquid spills.
- Overpack drums for containerizing leaking drums.
- 55-gallon open-top drums for containerization of waste materials.

*NOTE: All contaminated soils, absorbent materials, solvents and other materials resulting from the clean-up of spilled or discharged substances shall be properly stored, labeled, and disposed of off-site.

8.7 EMERGENCY CONTINGENCY PLAN

This section of the ERCP details the contingency measures OHM will take to prepare for and respond to fires, explosions, spills and releases of hazardous materials, hazardous weather, and medical emergencies.

8.8 MEDICAL EMERGENCY CONTINGENCY MEASURES

The procedures listed below will be used to respond to medical emergencies. The PSO will contact the local hospital and inform them of the site hazards and potential emergency situations. A minimum of two First-Aid/CPR trained personnel will be maintained on site.

8.8.1 Response

The nearest workers will immediately assist a person who shows signs of medical distress or who is involved in an accident. The work crew supervisor will be summoned.

The work crew supervisor will immediately make radio contact with the on-site emergency coordinator to alert him of a medical emergency situation. The supervisor will advise the following information:

- Location of the victim at the work site
- Nature of the emergency

- Whether the victim is conscious
- Specific conditions contributing to the emergency, if known

The Emergency Coordinator will notify the Project Safety Officer. The following actions will then be taken depending on the severity of the incident:

- Life-Threatening Incident — If an apparent life-threatening condition exists, the crew supervisor will inform the emergency coordinator by radio, and the local Emergency Response Services (EMS) will be immediately called. An on-site person will be appointed who will meet the EMS and have him/her quickly taken to the victim. Any injury within the EZ will be evacuated by OHM personnel to a clean area for treatment by (EMS) personnel. No one will be able to enter the EZ without showing proof of training, medical surveillance and site orientation.

- Non Life-Threatening Incident — If it is determined that no threat to life is present, the Project Safety Officer will direct the injured person through decontamination procedures (see below) appropriate to the nature of the illness or accident. Appropriate first aid or medical attention will then be administered.

*NOTE: The area surrounding an accident site must not be disturbed until the scene has been cleared by the Project Safety Officer.

Any personnel requiring emergency medical attention will be evacuated from exclusion and contamination reduction zones if doing so would not endanger the life of the injured person or otherwise aggravate the injury. Personnel will not enter the area to attempt a rescue if their own lives would be threatened. The decision whether or not to decontaminate a victim prior to evacuation is based on the type and severity of the illness or injury and the nature of the contaminant. For some emergency victims, immediate decontamination may be an essential part of life-saving first aid. For others, decontamination may aggravate the injury or delay life-saving first aid. Decontamination will be performed if it does not interfere with essential treatment.

If decontamination can be performed, observe the following procedures:

- Wash external clothing and cut it away.

If decontamination cannot be performed, observe the following procedures:

- Wrap the victim in blankets or plastic to reduce contamination of other personnel.

- Alert emergency and off-site medical personnel to potential contamination, instruct them about specific decontamination procedures.

- Send site personnel familiar with the incident and chemical safety information, e.g. MSDS, with the affected person.

All injuries, no matter how small, will be reported to the PSO or the RM. An accident/injury/illness report will be completely and properly filled out and submitted to the OSC and Regional Health and Safety Director/Project CIH (OHM only).

A list of emergency telephone numbers is given in Table 8.1.

8.8.2 Notification

The following personnel/agencies will be notified in the event of a medical emergency:

- Local Fire Department or EMS
- On-site Emergency Coordinator
- Workers in the affected areas
- Client Representative

8.9 FIRE CONTINGENCY MEASURES

Because flammable/combustible materials are present at this site, fire is an ever-present hazard. OHM personnel and subcontractors are not trained professional firefighters. Therefore, if there is any doubt that a fire can be quickly contained and extinguished, personnel will notify the emergency coordinator by radio and vacate the structure or area. The emergency coordinator will immediately notify the local Fire Department.

The following procedures will be used to prevent the possibility of fires and resulting injuries:

- Sources of ignition will be kept away from where flammable materials are handled or stored.
- The air will be monitored for explosivity before and during hot work and periodically where flammable materials are present. Hot work permits will be required for all such work.
- "No smoking" signs will be conspicuously posted in areas where flammable materials are present.
- Fire extinguishers will be placed in all areas where a fire hazard may exist.
- Before workers begin operations in an area the foreman will give instruction on egress procedures and assembly points. Egress routes will be posted in work areas and exit points clearly marked.

8.9.1 Response

The following procedures will be used in the event of a fire:

- Anyone who sees a fire will notify their supervisor who will then contact the Emergency Coordinator by radio. The emergency coordinator will activate the emergency air horns and contact the local Fire Department.
- When the emergency siren sounds, workers will disconnect electrical equipment in use (if possible) and proceed to the nearest fire exit.
- Work crews will be comprised of pairs of workers (buddy system) who join each other immediately after hearing the fire alarm and remain together throughout the emergency. Workers will assemble at a predetermined rally point for a head count.
- When a small fire has been extinguished by a worker, the emergency coordinator will be notified.

8.10 HAZARDOUS WEATHER CONTINGENCY MEASURES

Operations will not be started or continued when the following hazardous weather conditions are present:

- Lightning
- Heavy Rains/Snow
- High Winds

8.10.1 Response

- Excavation/soil stock piles will be covered with plastic liner.
- All equipment will be shut down and secured to prevent damage.
- Personnel will be moved to safe refuge, initially crew trailers. The emergency coordinator will determine when it is necessary to evacuate personnel to off-site locations and will coordinate efforts with fire, police and other agencies.

8.10.2 Notification

The emergency coordinator will be responsible for assessing hazardous weather conditions and notifying personnel of specific contingency measures. Notifications will include:

- OHM employees and subcontractors
- Client Representative
- Local Emergency Management Agency

8.11 SPILL/RELEASE CONTINGENCY MEASURES

In the event of release or spill of a hazardous material the following measures will be taken:

8.11.1 Response

Any person observing a spill or release will act to remove and/or protect injured/contaminated persons from any life-threatening situation. First aid and/or decontamination procedures will be implemented as appropriate.

First aid will be administered to injured/contaminated personnel. Unsuspecting persons/vehicles will be warned of the hazard. All personnel will act to prevent any unsuspecting persons from coming in contact with spilled materials by alerting other nearby persons. Attempt to stop the spill at the source, if possible. Without taking unnecessary risks, personnel will attempt to stop the spill at the source. This may involve activities such as uprighting a drum, closing a valve or temporarily sealing a hole with a plug.

Utilizing radio communications, the emergency coordinator will be notified of the spill/release, including information on material spilled, quantity, personnel injuries and immediate life threatening hazards. Air monitoring will be implemented by the emergency coordinator and PSO to determine the potential impact on the surrounding community. Notification procedures will be followed to inform on-site personnel and off-site agencies. The emergency coordinator will make a rapid assessment of the spill/release and direct confinement, containment and control measures. Depending upon the nature of the spill, measures may include:

- Construction of a temporary containment berm utilizing on-site clay absorbent earth
- Digging a sump, installing a polyethylene liner and
- Diverting the spill material into the sump placing drums under the leak to collect the spilling material before it flows over the ground
- Transferring the material from its original container to another container

The emergency coordinator will notify the Client Representative of the spill and steps taken to institute clean-up. Emergency response personnel will clean-up all spills following the spill clean-up plan developed by the emergency coordinator. Supplies necessary to clean up a spill will be immediately available on-site. Such items may include, but are not limited to:

- Shovel, rake
- Clay absorbent
- Polyethylene liner
- Personal safety equipment
- Steel drums
- Pumps and miscellaneous hand tools

The major supply of material and equipment will be located in the Support Zone. Smaller supplies will kept at active work locations. The emergency coordinator will inspect the spill site to determine that the spill has been cleaned up to the satisfaction of the Client. If necessary, soil, water or air samples may be taken and analyzed to demonstrate the effectiveness of the spill clean-up effort. The emergency coordinator will determine the cause of the spill and determine remedial steps to ensure that recurrence is prevented. The emergency coordinator will review the cause with the Client Representative and obtain his concurrence with the remedial action plan.

9.0 TRAINING REQUIREMENTS

As a requirement for work at this site, in any hazardous waste work area, all field personnel will be required to take a 40-hour training class. This training must cover the requirements in 29 CFR 1910.120: personal protective equipment, toxicological effects of various chemicals, hazard communication, bloodborne pathogens, handling of unknown tanks and drums, confined-space entry procedures, electrical safety, etc. In addition, all personnel must receive annual 8-hour refresher training and three day on-site training under a trained, experienced supervisor. Supervisory personnel shall have received an additional 8-hour training in handling hazardous waste operations.

All personnel entering the exclusion zone will be trained in the provisions of this site safety plan and be required to sign the Site Safety Plan Acknowledgment in Appendix A.

Site specific training for the Central Steel Drum site will include potential site contaminants, Hazard Communication as per 29 CFR 1910.1200, site physical and environmental hazards, the Federal Lead Standard 29 CFR 1910.1025), emergency response, and evacuation procedures. Emergency telephone numbers will be posted at the site location before any work at the site begins.

Outlines of the orientation for OHM / OHM sub-contract personnel and visitors are presented below:

9.1 SITE ORIENTATION

OHM/SUBCONTRACTORS

a. HASP sign off
b. Sign in/out procedures
c. Site background
d. Chain of command
e. Rules and regulations
f. Hours of work
g. Absences
h. Equipment
I. Emergency Information
   - Emergency signal
   - Gathering point
   - Responsibilities/roles
   - Emergency phone numbers

j. Contaminants and Material Safety Data Sheets (MSDS) [Hazard Communication Program]
k. JSAs (Phase Safety Plans)
l. Forms, site-specific

d. Work Zones in progress
e. Hazard Communication
f. Emergency plan/signals
g. Training/medical requirements
h. Zones/areas open to visitors

VISITOR ORIENTATION

a. Sign in/out procedures
b. Observation platform safety
c. Review of Site map

10.0 MEDICAL SURVEILLANCE PROGRAM

All site personnel shall participate in a medical monitoring program as outlined below. This program is initiated when the employee starts work with a complete physical and medical history and is continued on a regular basis. This program was developed in conjunction with a consultant toxicologist. Other medical consultants are retained when additional expertise is required.

TABLE 10.1
WORKER MEDICAL PROFILE

Item	Initial	Annual
Medical History	X	X
Work History	X	X
Visual Acuity and Tonometry	X	X
Pulmonary Function Tests	X	X
Physical Examination	X	X
Audiometry Tests	X	X
Chest X-Ray	X	X
Complete Blood Counts	X	X
Blood Chem. (SSAC-23 or equivalent)	X	X
Urinalysis	X	X
Dermatology Examination	X	X
Electrocardiogram (Stress Test) - based on age	X	X (based on age)

Specific tests required for Lead include blood lead, zinc protoporphoryn

10.1 EXAMINATION SCHEDULE

Employees are examined initially upon start of employment, bi-annually or annually thereafter, and may be examined upon termination of employment. Unscheduled medical examinations are conducted:

- At employee request after known or suspected exposure to toxic or hazardous materials
- At the discretion of the client, the CIH, PSO, or employer occupational physician after known or suspected exposure to toxic or hazardous materials
- At the discretion of the employer occupational physician

APPENDIX A
HEALTH AND SAFETY PLAN CERTIFICATION

HEALTH-AND-SAFETY PLAN CERTIFICATION

By signing this document, I am stating that I have read and understand the site health-and-safety plan for OHM Remediation Services Corp. personnel and visitors entering the Central Steel Drum site.

REPRESENTING	*NAME (PRINT)*	*SIGNATURE*	*DATE*

APPENDIX B
OHM HAZARD COMMUNICATION PROGRAM

APPENDIX B
OHM HAZARD COMMUNICATION PROGRAM

1. OBJECTIVE

A Site Specific Hazard Communication (Employee Right-To-Know) Program will be instituted at the Central Steel Drum Site, Newark, New Jersey.

2. PURPOSE

The purpose of Hazard Communication (Employee Right-to-Know) is to ensure that the hazards of all chemicals located at field project sites, shops, and facilities are transmitted (communicated), according to 29 CFR 1910.1200 and 29 CFR 1926.59 to all OHM personnel and OHM subcontractors.

3. GENERAL REQUIREMENTS

3.1 It is the responsibility of the Response Manager to ensure that the Hazard Communication Program for the area under their supervision is updated as necessary.

3.2 Container Labeling — OHM personnel will ensure that all drums and containers are labeled according to contents. These drums and containers will include those from manufacturers and those produced by on site operations. All incoming and outgoing labels shall be checked for identity, hazard warning, and name and address of responsible party.

3.3 Material Safety Data Sheets (MSDSs) — There will be an MSDS located on site for each hazardous chemical known to exist or which is being used on site. All MSDSs will be located in the site health and safety plan which can be found in the office trailer. MSDS's for products in use may be stored in a separate binder.

3.4 Employee Information and Site Specific Training — Training employees on chemical hazards is accomplished through an ongoing corporate and regional training program. Additionally, chemical hazards will be communicated to employees through daily safety meetings held at the project and by an initial site orientation program.

3.5 OHM employees will be instructed on the following:

- Chemicals and their hazards in the work area
- How to prevent exposure to these hazardous chemicals
- What the company has done to prevent workers' exposure to these chemicals
- Procedures to follow if they are exposed to these chemicals
- How to read and interpret labels and MSDSs for hazardous substances
- Emergency spill procedures
- Proper storage and labeling

3.6 Before any new hazardous chemical is introduced on site, each employee will be given information in the same manner as during the initial safety class. The response manager will be responsible for seeing that the MSDS on the new chemical is available. During the mandatory morning safety briefing, information on each new chemical will be presented.

Should any new chemical be brought on site, the appropriate MSDSs will be added and reviewed with the employees.

1. GENERAL

The following written Hazard Communication Program has been established for OHM Remediation Services Corp. (OHM). The purpose of this program is to transmit information to the workers about the chemical hazards in the work place using various media. The transmittal of information will be accomplished by means of a comprehensive Hazard Communication Program, which will include container labeling and other forms of warning, material safety data sheets (MSDSs), and employee training in accordance with 29 CFR 1910.1200 and 29 CFR 1926.59.

Upon mobilization at the job site the Hazard Communication Program will be reviewed with all employees. Upon reading the Hazard Communication Program employees will be asked to sign the "Worker Hazard Communication Acknowledgment Form". The Hazard Communication Program will also be reviewed with new employees and visitors as they arrive on site. These persons will also be asked to sign the acknowledgment form. The Hazard Communication Program shall be available for review by anyone on site any time during normal work hours. OHM will accomplish the hazard communication requirements through formal safety training, departmental safety meetings, and job-site safety meetings.

The Health and Safety Department shall update the Hazard Communication Program when personnel responsibilities change, a new non-routine task is introduced, or an extremely hazardous material needs particular attention. This new program will then be distributed throughout the company.

2. RESPONSIBILITIES

Overall responsibility for compliance with the site specific Hazard Communication Program rests with the OHM RM. A brief outline of responsibilities for those persons directly involved with the program will follow. These responsibilities are not all inclusive, but are designed to give guidance in initial and long-term program development. Since each area is different, these responsibilities may vary.

This program is intended to cover those employees who are directly involved with the handling of hazardous chemicals or supervision of activities that involve the use of hazardous chemicals.

2.1 Health and Safety Department Responsibilities

- Review operations with Response Managers to determine what tasks require hazard communication training.
- Advise supervisory people as to which materials may need to be considered hazardous initially and eventually to ensure that hazard task determination is being done according to the written policy.
- Follow up through safety meetings and safety audits to ensure that supervisors are carrying out prescribed company policy.
- Notify supervisors immediately of any operating changes affecting the hazardous chemicals being used.

2.2 Training Department Responsibilities

- Ensure that up-to-date records are maintained on training of all employees required to handle hazardous chemicals. The supervisor should keep copies of these records and should also send copies of the initial training to the corporate training secretary for the training file.
- Educate personnel upon initial 40-hour OSHA training to the requirements of the Hazard Communication Standard.

2.3 Response Managers' Responsibilities

- Identify jobs requiring the use of hazardous chemicals and develop a list of those jobs and chemicals.
- Provide the training required by the Hazard Communication Standard and document training of employees in the safe handling of hazardous chemicals.
- Ensure inspection of engineering controls and personal protective equipment before each use. The health and safety department shall help determine a suitable inspection plan for each application as needed.
- Make daily surveys of the work area to ensure that safe practices are being followed. Advise employees of and document unsafe work practices on the first occasion and consider further unsafe work practices as disciplinary violations. Use documentation as topics of safety meetings.
- Ensure required labeling practices are being followed. Labels should be affixed to the container when it arrives. If the contents are transferred to another container, then all label information (manufacturer, manufacturer's telephone number, product name, target organ(s) and product number) must also be affixed to the new container, so that all containers of the material, regardless of size, are labeled. Contact the health and safety department for proper labels.
- Enforce all applicable safety and health standards through periodic documented audits.
- Before ordering a material, determine if a MSDS exists on file. Request a MSDS from the manufacturer for all new products.

2.4 Employee Responsibilities

- Read and understand entire Site Specific Hazard Communication Program.
- Obey established safety rules and regulations.
- Use all safety procedures and personal protective equipment as required by company procedures.
- Notify supervisor of the following:
  - Any symptoms or unusual effects that may be related to the use of hazardous chemicals.
  - Any missing, incomplete, or unreadable labels on containers.
  - Missing, damaged, or malfunctioning safety equipment.
- Use approved labels on containers; do not remove labels (labels are available from the health and safety department).
- Use only approved containers for hazardous chemicals. (Is chemical and container compatible and appropriate?)
- Know where emergency equipment and first-aid supplies are located.
- Know location of MSDSs. These will be located in the break/decon area and the job-site office trailer.
- Know what you are expected to do in case of an emergency. Before the commencement of any task, emergency considerations shall be made.

2.5 Shipping/Receiving Personnel Responsibilities

- The Project Accountant (PA) or other persons assigned by the RM shall ensure MSDSs are received with initial shipment of a hazardous chemical; if not, contact purchasing to request the appropriate MSDS and also call the health and safety department to determine if there is a MSDS available until the requested MSDS arrives.
- Ensure labels with required information are affixed to all containers.
- Store hazardous materials in designated locations.
- Use proper personal protective equipment when handling hazardous chemicals.
- Report damaged containers or spills to the Response Manager and the Project Safety Officer immediately.

3. HAZARD DETERMINATION

OHM will rely on MSDSs from chemical suppliers and manufacturers to meet hazard determination requirements. Other relevant data from laboratory analyses, chemical reference materials, and chemical manufacturers' written evaluation procedures will be utilized when warranted. No other method shall be used to determine a chemicals' hazards unless approved by the health and safety department.

4. LABELING

The Response Manager will be responsible for seeing that all containers arriving at OHM job sites are properly and clearly labeled. Response Manager shall also check all labels for chemical identity and appropriate hazard warnings. If the hazardous chemical is regulated by OSHA in a substance specific health standard (29 CFR 1910), the Response Manager shall ensure that the labels or other forms of warning used are in accordance with the requirements of that standard. Any container that is not labeled shall be immediately labeled after initial discovery with the required information.

The Response Manager or Team Leader (TL) shall be responsible for seeing that all portable containers used in their work area are properly labeled with chemical identity and hazard warning. (Refer to MSDS for required labeling information.)

The Response Manager or Team Leader shall also ensure that labels on hazardous chemical containers are not removed or defaced unless the container is immediately marked with the required information and that all labels are legible in English and prominently displayed on the container or readily available in the work area throughout each shift.

If any container is found and the contents cannot be identified, the Response Manager shall be contacted immediately. When proper identification is made, a label shall be affixed to the container immediately. If it is discovered that no MSDS is available, the manufacturer and the health and safety department shall be contacted to assist in locating the proper MSDS. If there is no means of identifying the material in the container, the container shall be taken out of service, away from all personnel until it can be tested by the health and safety department or laboratory personnel. The Response Manager shall communicate their findings or awareness of such containers to all personnel working in the area and to the district health and safety manager.

5. MATERIAL SAFETY DATA SHEETS (MSDS)

The Response Manager at the job site will be responsible for maintaining a current MSDS relevant to the hazardous chemicals used on their job sites. The health and safety department will be responsible for compiling the initial MSDS file for the job site and aiding all job sites with the completion and maintenance of their respective MSDS files.

All MSDSs shall be readily available for review by all employees during each work shift. Each job site will designate a clearly marked "Employee Right-to-Know" station where employees can immediately obtain a MSDS and the required information in an emergency. MSDSs shall also be made available, upon request, to designated OHM representatives, other employer's employees, and to any OSHA inspector in accordance with the requirements of 29 CFR 1910.1200(e).

Although manufacturers are required to provide employers with MSDSs on an initial chemical shipment, OHM purchasing agents (and response managers purchasing their own material) shall request MSDSs and updates to MSDSs on all purchase orders. Response managers that are without proper MSDSs shall be responsible for requesting this information from chemical manufacturers. The Response Manager shall maintain a file of follow-up letters for all hazardous chemical shipments they receive without MSDSs.

6. EMPLOYEE INFORMATION AND TRAINING

It is the responsibility of the supervisor in charge of each employee to ensure that the employee is properly trained. Training employees on chemical hazards and chemical handling is accomplished at the time of initial employment at OHM, whenever a new chemical (or physical) hazard is introduced into the work area, and through ongoing formal and informal training programs. Additionally, chemical hazards are communicated to employees through weekly and morning, job- site safety meetings, which shall be documented according to topic, major points discussed, and names of those attending (attendance is mandatory). Records of all formal training conducted at OHM are coordinated and maintained by the Training Department secretary.

At a minimum, OHM will inform employees on the following:

- The requirements of 29 CFR 1910.1200--Hazard Communication--Evaluating the potential hazards of chemicals and communicating information concerning hazards and appropriate protective measures to employees. OHM shall accomplish employee training in several different ways including, but not limited, to 40-hour OSHA Hazardous Waste Worker Training (29 CFR 1910.120), shop safety meetings, job-site safety meetings, Health and Safety Department safety meetings, and formal and informal training about specific chemical hazards.

- The location and availability of the written Hazard Communication Program, list of hazardous chemicals, and MSDSs will be periodically posted on the employee bulletin boards providing the location of the above material.

- Any operations in their work area where hazardous chemicals are present.

- How to work safety with chemicals present in the workplace and minimize potential exposure.

Employee training shall include the following:

- Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (monitoring instruments, visual appearance or odor, and acute and chronic health effects).
- The physical, chemical, and health hazards of the chemicals in the work area.

- The methods of preventing exposure to hazardous chemicals including the measures OHM has taken to protect the employees.

- Procedures to follow if OHM employees are exposed to hazardous chemicals (location of the nearest phone, emergency eyewash, and shower will be included). These discussions shall include proper operating procedures for all emergency equipment.

- The details of the OHM written Hazard Communication Program, including an explanation of the labeling system and the MSDSs, and how employees can obtain and use the appropriate hazard information.

- Procedures for workers involved in non-routine tasks.

Each Response Manager shall ensure that the above training is emphasized to OHM employees. The health and safety department will ensure that each job site is properly informing and training all employees through group meetings and individual discussions. Whenever a new hazardous chemical is placed into use, the Response Manager shall inform the employees of the hazards said chemical may pose. The Response Manager shall also be responsible for obtaining and making available a MSDS for the new chemical.

7. HAZARDOUS NON-ROUTINE TASKS

Occasionally, employees at OHM are required to perform tasks which are considered to be non-routine. All tasks OHM considers non-routine shall be carefully discussed among the supervisor and those performing the task. This safety briefing shall include all possible hazards an employee may encounter while completing the task, including:

- Hazard recognition
- Chemicals involved and their hazardous properties
- Physical hazards
- Methods of avoiding hazards (monitoring instruments, proper personal protective equipment, etc.)

The following is a list of some of the non-routine tasks which may occur at OHM job sites. These tasks are all covered in detail in various OHM standard operating Procedures.

7.1 Confined Space Entry
7.2 Excavation, Trenching, and Shoring
7.3 Decontamination of Equipment
7.4 Laboratory Spills
7.5 High-Pressure Washer (Laser) Operation
7.6 Line Entry Procedure
7.7 Hot Work

8. INFORMING CONTRACTORS

It shall be the responsibility of the OHM Response Manager/PSO to provide subcontractors with the following information:

- Hazardous chemicals to which they may be exposed while performing a task including the following:
  - Chemical properties
  - Physical properties
  - Acute/Chronic health effects
- Location of "Employee Right-to Know" station which includes the following:
  - MSDS for work area
  - Hazard Communication Program
  - Other relevant safety material such as Project Health and Safety Plan (HASP)
- Precautionary measures to be taken to protect employees from chemical and physical hazards.
- Location of nearest emergency equipment (fire extinguisher, eyewash, shower, phone, first-aid kit, etc.)
- Procedures to follow in the event of employee exposure.
- Steps OHM has taken to reduce the risk of exposure to physical and chemical hazards including the following:

- Safety meetings
- Hazard Communication Program
- Proper storage and labeling of hazardous chemicals
- Health and safety department shop audits

- The methods used to label all hazardous chemicals.

- Emergency evacuation signals and evacuation rally locations.

The health and safety department shall offer assistance in providing the above information to subcontractors working at OHM job sites. On initial visit by a subcontractor to OHM job sites, a "Contractor Right-to-Know" release form shall be completed. This form will state that the above information has been communicated to the perspective contractor.

Conversely, the Response Manager shall obtain the above information from subcontractors for hazardous materials they have brought to our projects.

8.1 Contractor Right-to-Know Acknowledgment

By signing this sheet, the signee is stating that an OHM employee or representative has briefed said signee on the essentials of OHM's Hazard Communication Program, including hazardous chemical(s) to which one may be exposed, location of program and MSDS, precautionary measures taken to protect contractors from chemical and physical hazards, location of nearest emergency equipment, procedures to follow in the event of employer's employee chemical exposure, and method used to label all hazardous chemicals.

Name	Date	Company
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

9. LIST OF HAZARDOUS CHEMICALS

The following is a list of hazardous chemicals used on this OHM job site. Further information on each hazardous chemical listed below can be found in the MSDS which are included in the site specific health and safety plan.

- Typical OHM Job-Site Hazardous Chemical Inventory List

Available On Site	Chemicals
_____	Acetone
_____	Acetylene
_____	Activated Charcoal, Powder

_____ Alum (Aluminum Sulfate)
_____ Anti-fog Bausch & Lomb
_____ Argon/Methan (95%/5%)
_____ Brake Fluid
_____ Calcium Hydroxide (Hydrated Lime)
_____ Calibration Check Gas
_____ Carbon
_____ Caustic Soda (Sodium Hydroxide)
_____ Citrikleen
_____ Coal Fly Ash
_____ Compressed Air
_____ Diatomaceous Earth
_____ Diesel Fuel
_____ Dry Ice (Solid Carbon Dioxide)
_____ Ethylene Glycol
_____ Ferric Chloride
_____ Freon
_____ Gear Grease - Delta
_____ Helium
_____ Hexane
_____ Hydraulic Fluid
_____ Hydrochloric Acid
_____ Hydrogen
_____ Isobutylene
_____ Kiln Dust
_____ Methanol
_____ Nitrogen
_____ Nitrous Oxide
_____ Oxygen
_____ Penetone
_____ Pentane
_____ Polymers (Flocculants)
_____ Premium Unleaded Gasoline
_____ PVC Solvent Cleaner
_____ PVC Cement
_____ Regular Leaded Gasoline
_____ Starting Fluid
_____ Stoddard Solvent
_____ Sulfuric Acid
_____ 10W-40 Motor Oil - Shell
_____ Tube Grease - Kendall
_____ TU Type 555 Thread Sealing Compound
_____ 2-Cycle Oil - Wolf's Head

- Site-Specific Hazardous Chemical Inventory

_____

_____

_____

_____

APPENDIX C
MATERIAL SAFETY DATA SHEETS

AT & T TECHNOLOGIES GENERAL HQ -- 000000001 LEAD
MATERIAL SAFETY DATA SHEET
FSC: 6850
NIIN: 00F037221
Manufacturer's CAGE: 1D306
Part No. Indicator: A
Part Number/Trade Name: 000000001 LEAD

General Information

Company's Name: AT AND T TECHNOLOGIES GENERAL HQ
Company's Street: 1 OAK WAY
Company's City: BERKELEY HEIGHTS
Company's State: NJ
Company's Country: US
Company's Zip Code: 07922-2727
Company's Emerg Ph #: 201-771-2000/908-204-8243
Company's Info Ph #: 201-771-2000/908-204-8243
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 001
Status: SE
Date MSDS Prepared: 18MAR91
Safety Data Review Date: 02NOV94
Preparer's Company: AT AND T TECHNOLOGIES GENERAL HQ
Preparer's St Or P. O. Box: 1 OAK WAY
Preparer's City: BERKELEY HEIGHTS
Preparer's State: NJ
Preparer's Zip Code: 07922-2727
MSDS Serial Number: BVTJQ

Ingredients/Identity Information

Proprietary: NO
Ingredient: LEAD, INORGANIC LEAD (IARC GROUP 2B) *94-3*
Ingredient Sequence Number: 01
Percent: >99
NIOSH (RTECS) Number: OF7525000
CAS Number: 7439-92-1
OSHA PEL: 50 UG/CUM
ACGIH TLV: 0.15 MG/CUM

Physical/Chemical Characteristics

Appearance And Odor: HEAVY, DUCTILE SOFT GRAY SOLID
Boiling Point: 3164F
Melting Point: 621.32F
Vapor Pressure (MM Hg/70 F): 1
Specific Gravity: 11.3
Solubility In Water: INSOLUBLE
Percent Volatiles By Volume: 0

Fire and Explosion Hazard Data

Flash Point: NONE
Extinguishing Media: USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING FIRE CONDITIONS.
Special Fire Fighting Proc: USE SCBA & PROTECTIVE CLOTHING.

Reactivity Data

Stability: YES
Cond To Avoid (Stability): HIGH TEMPS
Materials To Avoid: STRONG OXIDIZERS, HYDROGEN PEROXIDE, ACTIVE METALS
Hazardous Decomp Products: TOXIC FUMES OF LEAD
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): NONE

Health Hazard Data

Route Of Entry - Inhalation: YES
Route Of Entry - Skin: YES

Route Of Entry - Ingestion: NO
Health Haz Acute And Chronic: EARLY SYMPTOMS OF LEAD INTOXICATION INCLUDE PERSISTENT METALLIC TASTE, ANOREXIA, CONSTIPATION & SEVERE ABDOMINAL PAIN. CONTINUED EXPOSURES RESULT IN MUSCLE WEAKNESS & FATIGUE, DEGENERATIVE CHANGES IN MOTOR NEURONS, PALLOR OF FACE, ANEMIA, LIVER & KIDNEY DAMAGE, HEADACHE & INSOMNIA. CAUSES CHROMOSOMAL ABBERATIONS.
Carcinogenicity - NTP: NO
Carcinogenicity - IARC: YES
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: SEE INGREDIENTS.
Signs/Symptoms Of Overexp: EARLY SYMPTOMS OF LEAD INTOXICATION INCLUDE PERSISTENT METALLIC TASTE, ANOREXIA, CONSTIPATION & SEVERE ABDOMINAL PAIN. CONTINUED EXPOSURES RESULT IN MUSCLE WEAKNESS & FATIGUE, DEGENERATIVE CHANGES IN MOTOR NEURONS, PALLOR OF FACE, ANEMIA, LIVER & KIDNEY DAMAGE, HEADACHE & INSOMNIA. CAUSES CHROMOSOMAL ABBERATIONS.
Emergency/First Aid Proc: FLUSH W/LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINS. SKIN: WASH W/SOAP & WATER. INHALATION: REMOVE TO FRESH AIR. INGESTION: IF CONSCIOUS GIVE LARGE AMOUNTS OF WATER & INDUCE VOMITING. OBTAIN MEDICAL ATTENTION IN ALL CASES.

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: IF MATERIAL IS RECLAIMED (GROUND/CHOPPED), CLEAN-UP SHOULD BE PERFORMED AS SOON AS POSSIBLE TO MINIMIZE DISPERSION. IF POSSIBLE, VACUUM EQUIPPED W/HEPA FILTER SHOULD BE USED. IF NOT, USE WET METHODS.
Waste Disposal Method: DISPOSE OF IN ACCORDANCE W/FEDERAL, STATE & LOCAL REGULATIONS. LEAD MUST BE DISPOSED OF IN COMPLIANCE W/RCRA. RECLAMATION OF LEAD AT AN APPROPRIATE FACILITY IS SUGGESTED.
Precautions-Handling/Storing: DON'T EAT, DRINK, SMOKE/APPLY COSMETICS IN ANY WORK AREA WHERE EXPOSURE TO LEAD, LEAD DUST/LEAD FUME MAY OCCUR.
Other Precautions: ANNUAL PHYSICAL EXAMINATIONS ARE REQUIRED WHEN AIRBORNE LEAD LEVELS EXCEED 30 UG/CUM FOR 30 DAYS.

Control Measures

Respiratory Protection: REQUIRED IF CONCENTRATION EXCEEDS PEL. FOR CONCENTRATIONS 50-500 UG/CUM, USE HIGH EFFICIENCY TOXIC DUST RESPIRATOR CARTRIDGE.
Ventilation: GENERAL MAY BE ADEQUATE. LOCAL EXHAUST IS PREFERRED. SHOULD BE IN PATTERN/VOLUME SUFFICIENT TO MAINTAIN EXPOSURE LEVELS.
Protective Gloves: REQUIRED. COTTON TYPE SUGGESTED.
Eye Protection: SAFETY GLASSES W/SIDE SHIELDS
Other Protective Equipment: SHOE COVERS, COVERALLS, HEAD PROTECTION, GOGGLES
Work Hygienic Practices: CLOTHES MUST BE CLEANED & DRIED WEEKLY. WASH AFTER EXPOSURE/HANDLING & BEFORE EATING/DRINKING/SMOKING/APPLYING MAKE-UP.

Transportation Data

Disposal Data

Label Data

Label Required: YES
Label Status: G
Common Name: 000000001 LEAD
Special Hazard Precautions: EARLY SYMPTOMS OF LEAD INTOXICATION INCLUDE PERSISTENT METALLIC TASTE, ANOREXIA, CONSTIPATION & SEVERE ABDOMINAL PAIN. CONTINUED EXPOSURES RESULT IN MUSCLE WEAKNESS & FATIGUE, DEGENERATIVE CHANGES IN MOTOR NEURONS, PALLOR OF FACE, ANEMIA, LIVER & KIDNEY DAMAGE, HEADACHE & INSOMNIA. CAUSES CHROMOSOMAL ABBERATIONS. EARLY SYMPTOMS OF LEAD INTOXICATION INCLUDE PERSISTENT METALLIC TASTE, ANOREXIA, CONSTIPATION & SEVERE ABDOMINAL PAIN. CONTINUED EXPOSURES RESULT IN MUSCLE WEAKNESS & FATIGUE, DEGENERATIVE CHANGES IN MOTOR NEURONS, PALLOR OF FACE, ANEMIA, LIVER & KIDNEY DAMAGE, HEADACHE & INSOMNIA. CAUSES CHROMOSOMAL ABBERATIONS.
Label Name: AT AND T TECHNOLOGIES GENERAL HQ
Label Street: 1 OAK WAY
Label City: BERKELEY HEIGHTS
Label State: NJ
Label Zip Code: 07922-2727

Label Country: US
Label Emergency Number: 201-771-2000/908-204-8243

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GEORGIA-PACIFIC BELLINGHAM DIV -- SODIUM HYDROXIDE,50% LIQUID. - SODIUM HYDROXIDE SOLUTION
MATERIAL SAFETY DATA SHEET
FSC: 6810
NIIN: 010513050
Manufacturer's CAGE: 95732
Part No. Indicator: A
Part Number/Trade Name: SODIUM HYDROXIDE,50% LIQUID.

General Information

Item Name: SODIUM HYDROXIDE SOLUTION
Company's Name: GEORGIA-PACIFIC CORP. BELLINGHAM DIVISION
Company's Street: 300 LAUREL STREET
Company's P. O. Box: 1236
Company's City: BELLINGHAM
Company's State: WA
Company's Country: US
Company's Zip Code: 98227
Company's Emerg Ph #: 206-733-4410
Company's Info Ph #: 206-733-4410
Record No. For Safety Entry: 025
Tot Safety Entries This Stk#: 026
Status: SE
Date MSDS Prepared: 24FEB88
Safety Data Review Date: 26MAR92
Supply Item Manager: CX
MSDS Preparer's Name: KIP HOWLETT
MSDS Serial Number: BMDTZ
Specification Number: NOT APPLICABLE
Hazard Characteristic Code: C2
Unit Of Issue: DR
Unit Of Issue Container Qty: 55 GALLONS
Type Of Container: DRUM
Net Unit Weight: 700.7 LBS

Ingredients/Identity Information

Proprietary: NO
Ingredient: SODIUM HYDROXIDE (SARA III)
Ingredient Sequence Number: 01
Percent: >48.5
NIOSH (RTECS) Number: WB4900000
CAS Number: 1310-73-2
OSHA PEL: 2 MG/M3
ACGIH TLV: C 2 MG/M3; 9293
Other Recommended Limit: NONE SPECIFIED

Physical/Chemical Characteristics

Appearance And Odor: CLEAR LIQUID, NO ODOR.
Boiling Point: 284F,140C
Melting Point: UNKNOWN
Vapor Pressure (MM Hg/70 F): 13 @ 140F
Vapor Density (Air=1): UNKNOWN
Specific Gravity: 1.53
Decomposition Temperature: UNKNOWN
Evaporation Rate And Ref: UNKNOWN
Solubility In Water: COMPLETE
Viscosity: UNKNOWN
pH: > 12.5
Corrosion Rate (IPY): UNKNOWN

Fire and Explosion Hazard Data

Flash Point: NONE
Extinguishing Media: NON-FLAMMABLE. USE EXTINGUISHING MEDIA APPROPIATE FOR SURROUNDING FIRE.
Special Fire Fighting Proc: WEAR FIRE FIGHTING PROTECTIVE EQUIPMENT AND A FULL FACED SELF CONTAINED BREATHING APPARATUS. COOL FIRE EXPOSED CONTAINERS WITH WATER SPRAY.
Unusual Fire And Expl Hazrds: SODIUM HYDROXIDE WILL REACT WITH METALS SUCH

AS ALUMINUM, TIN, AND ZINC TO GENERATE FLAMMABLE AND EXPLOSIVE HYDROGEN GAS.

Reactivity Data

Stability: YES
Cond To Avoid (Stability): NONE NOTED.
Materials To Avoid: ACIDS, MANY ORGANIC CHEMICALS, ESPECIALLY NITROCARBONS & HALOCARBONS, LEATHER, WOOL, ALUMINUM, TIN, ZINC, & THEIR ALLOYS
Hazardous Decomp Products: NONE.
Hazardous Poly Occur: NO

Health Hazard Data

LD50-LC50 Mixture: LD50 ORAL RAT IS UNKNOWN
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: YES
Route Of Entry - Ingestion: YES
Health Haz Acute And Chronic: ACUTE: SODIUM HYDROXIDE IS A STRONG ALKALI AND IS DESTRUCTIVE OF ALL HUMAN TISSUE IT CONTACTS, GIVING SEVERE BURNS. EYE CONTACT WILL PRODUCE SEVERE OR PERMANENT INJURY. INHALATION OF MIST OR SPRAY CAN INJURE THE ENTIRE RESPIRATORY TRACT. CHRONIC: MANUFACTURER DID NOT SPECIFY.
Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: NOT APPLICABLE.
Signs/Symptoms Of Overexp: EYES: SEVERE BURNS. POSSIBLE PERMANENT TISSUE DAMAGE AND POSSIBLE BLINDNESS. SKIN: SEVERE IRRITATION. POSSIBLE CHEMICAL BURNS AND POSSIBLE PERMANENT TISSUE DAMAGE. INHALATION: SEVERE IRRITATION AND POSSIBLE PERMANENT DAMAGE TO UPPER RESPIRATORY TRACT.
Med Cond Aggravated By Exp: NONE.
Emergency/First Aid Proc: EYES: IMMEDIATELY FLUSH WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. SEE DOCTOR IMMEDIATELY. SKIN: FLUSH WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. SEE DOCTOR. INHALATION: REMOVE TO FRESH AIR. GIVE OXYGEN/CPR IF NEEDED. SEE DOCTOR IMMEDIATELY. INGESTION: DO NOT INDUCE VOMITING. DRINK LARGE AMOUNTS OF WATER. SEE DOCTOR IMMEDIATELY.

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: PICK UP SPILL WITH VACUUM EQUIPMENT (ALKALI RESISTANT) FOR DISPOSAL OR FLUSH TO HOLDING AREA WITH LARGE AMOUNTS OF WATER.
Neutralizing Agent: 5% ACETIC ACID.
Waste Disposal Method: NOTIFY YOUR LOCAL ENVIRONMENTAL OFFICER. WASTE CAUSTIC MUST NEVER BE DISCHARGED TO SEWERS OR SURFACE WATERS. FIRST CONVERT TO NEUTRAL SALTS AND DILUTE WELL WITH WATER. SODIUM HYDROXIDE WASTE EXHIBITS THE EPA CHARACTERISTIC OF CORROSIVITY.
Precautions-Handling/Storing: DO NOT PERMIT WORKERS TO HANDLE SODIUM HYDROXIDE WITHOUT PROPER TRAINING OR EQUIPMENT. STORE IN SEALED CONTAINERS PROTECTED FROM PHYSICAL DAMAGE.
Other Precautions: AVOID HANDLING CONDITIONS WHICH LEAD TO SPILLS OR MIST FORMATION. DRAINS MUST HAVE RETENTION BASINS FOR PH ADJUSTMENT AND NEUTRALIZATION OF SPILLED MATERIAL. HAVE ABUNDANT RUNNING WATER AVAILABLE WHERE MATERIAL IS STORED, UNLOADED OR HANDLE

Control Measures

Respiratory Protection: IF TLV IS EXCEEDED, USE SUPPLIED AIR RESPIRATOR WITH FULL FACEPIECE, HELMET OR HOOD, OR SELF-CONTAINED BREATHING APPARATUS WIHT A FULL FACEPIECE.
Ventilation: LOCAL EXHAUST ESPECIALLY WHERE POSSIBILITY OF MIST FORMATION EXISTS.
Protective Gloves: RUBBER.
Eye Protection: DUSTPROOF AND SPLASHPROOF SAFETY GOGGLES
Other Protective Equipment: APRON OR PROTECTIVE CLOTHING, AND RUBBER BOOTS (TOPS COVERED BY APRON OR CLOTHING TO PREVENT ENTRANCE OF CAUSTIC).
Work Hygienic Practices: WASH THOROUGHLY AFTER HANDLING AND BEFORE SMOKING OR EATING.LAUNDER CONTAMINATED CLOTHING. DISCARD CONTAMINATED SHOES.
Suppl. Safety & Health Data: NONE

Transportation Data

Trans Data Review Date: 92086
DOT PSN Code: NGY
DOT Proper Shipping Name: SODIUM HYDROXIDE SOLUTION
DOT Class: 8
DOT ID Number: UN1824
DOT Pack Group: II
DOT Label: CORROSIVE
IMO PSN Code: NTB
IMO Proper Shipping Name: SODIUM HYDROXIDE, SOLUTION
IMO Regulations Page Number: 8226
IMO UN Number: 1824
IMO UN Class: 8
IMO Subsidiary Risk Label: -
IATA PSN Code: WST
IATA UN ID Number: 1824
IATA Proper Shipping Name: SODIUM HYDROXIDE SOLUTION
IATA UN Class: 8
IATA Label: CORROSIVE
AFI PSN Code: WST
AFI Prop. Shipping Name: SODIUM HYDROXIDE, SOLUTION
AFI Class: 8
AFI ID Number: UN1824
AFI Pack Group: II
AFI Label: CORROSIVE
AFI Special Prov: N34
AFI Basic Pac Ref: 12-5

Disposal Data

Label Data

Label Required: YES
Label Status: G
Common Name: SODIUM HYDROXIDE,50% LIQUID.
Special Hazard Precautions: ACUTE: SODIUM HYDROXIDE IS A STRONG ALKALI AND IS DESTRUCTIVE OF ALL HUMAN TISSUE IT CONTACTS, GIVING SEVERE BURNS. EYE CONTACT WILL PRODUCE SEVERE OR PERMANENT INJURY. INHALATION OF MIST OR SPRAY CAN INJURE THE ENTIRE RESPIRATORY TRACT. CHRONIC: MANUFACTURER DID NOT SPECIFY. EYES: SEVERE BURNS. POSSIBLE PERMANENT TISSUE DAMAGE AND POSSIBLE BLINDNESS. SKIN: SEVERE IRRITATION. POSSIBLE CHEMICAL BURNS AND POSSIBLE PERMANENT TISSUE DAMAGE. INHALATION: SEVERE IRRITATION AND POSSIBLE PERMANENT DAMAGE TO UPPER RESPIRATORY TRACT.
Label Name: GEORGIA-PACIFIC CORP. BELLINGHAM DIVISION
Label Street: 300 LAUREL STREET
Label P.O. Box: 1236
Label City: BELLINGHAM
Label State: WA
Label Zip Code: 98227
Label Country: US
Label Emergency Number: 06-733-4410

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COULTON CHEMICAL -- SULFURIC ACID, CONCENTRATED - SULFURIC ACID, TECHNICAL
MATERIAL SAFETY DATA SHEET
FSC: 6810
NIIN: 009750907
Manufacturer's CAGE: COULT
Part No. Indicator: A
Part Number/Trade Name: SULFURIC ACID, CONCENTRATED

General Information

Item Name: SULFURIC ACID, TECHNICAL
Company's Name: COULTON CHEMICAL CORPORATION
Company's Street: 6600 SYLVANIA AVE
Company's City: SYLVANIA
Company's State: OH
Company's Country: US
Company's Zip Code: 43560
Company's Emerg Ph #: 419-885-4661
Company's Info Ph #: 419-885-4661
Distributor/Vendor # 1: MAYS CHEMICAL CO INC (317-842-8722)
Distributor/Vendor # 1 Cage: 6T060
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 001
Status: SE
Date MSDS Prepared: 25SEP91
Safety Data Review Date: 27JUN95
Supply Item Manager: CX
MSDS Serial Number: BXCPC
Hazard Characteristic Code: C1
Unit Of Issue: DR
Unit Of Issue Container Qty: 13 GALLONS
Type Of Container: DRUM

Ingredients/Identity Information

Physical/Chemical Characteristics

Appearance And Odor: COLORLESS, OILY LIQUID
Boiling Point: 518F,270C
Melting Point: -30F,-34C
Vapor Pressure (MM Hg/70 F): NOT GIVEN
Vapor Density (Air=1): NOT GIVEN
Specific Gravity: 1.84
Decomposition Temperature: UNKNOWN
Evaporation Rate And Ref: NOT GIVEN
Solubility In Water: COMPLETE
Corrosion Rate (IPY): UNKNOWN

Fire and Explosion Hazard Data

Flash Point: NONFLAMMABLE
Lower Explosive Limit: NOT GIVEN
Upper Explosive Limit: NOT GIVEN
Extinguishing Media: DO NOT USE WATER. IF WATER IS ADDED TO CONCENTRATED ACID A SEVERE ERUPTION MAY RESULT. USE CARBON DIOXIDE, DRY CHEMICAL
Special Fire Fighting Proc: FIRE FIGHTERS SHOULD WEAR SELF CONTAINED BREATHING APPARATUS. COOL TANKS AND CONTAINERS EXPOSED TO FIRE WITH WATER.
Unusual Fire And Expl Hazrds: DILUTE SULFURIC ACID WILL REACT WITH MOST METALS TO LIBERATE HYDROGEN GAS WHICH CAN REACH FLAMMABLE OR EXPLOSIVE LIMITS IF ALLOWED TO COLLECT.

Reactivity Data

Stability: YES
Cond To Avoid (Stability): WATER
Materials To Avoid: BASES, ORGANIC MATERIALS, METALS
Hazardous Decomp Products: HYDROGEN GAS
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): NONE. WILL NOT OCCUR.

Health Hazard Data

LD50-LC50 Mixture: NOT GIVEN
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: YES
Route Of Entry - Ingestion: YES
Health Haz Acute And Chronic: CONCENTRATED SULFURIC ACID IS A STRONG DEHYDRATING AGENT THAT WILL QUICKLY DAMAGE HUMAN TISSUE, ESPECIALLY IF HEATED. INHALATION OF MISTS CAN DAMAGE RESPIRATORY TRACT AND LUNGS. EYE INJURIES CAN BE SEVERE AND PERMANENT.
Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: THIS COMPOUND CONTAINS NO INGREDIENTS AT CONCENTRATIONS OF 0.1% OR GREATER THAT ARE CARCINOGENS OR SUSPECT CARCINOGENS.
Signs/Symptoms Of Overexp: TISSUE DAMAGE, RESPIRATORY TRACT DAMAGE, SEVERE EYE DAMAGE, BLINDNESS.
Med Cond Aggravated By Exp: NONE SPECIFIED BY MANUFACTURER.
Emergency/First Aid Proc: EYES: IMMEDIATELY FLUSH WITH WATER FOR AT LEAST 15 MINUTES. FLUSH UNDER LIDS BY LIFTING THEM OR ROLLING EYES. SEE DOCTOR ASAP. SKIN: FLUSH WITH WATER. REMOVE CLOTHING AND CONTINUE FLUSHING. INHALATION: REMOVE TO FRESH AIR AND RESTORE BREATHING. GET MEDICAL HELP. INGESTION: DO NOT INDUCE VOMITING. DILUTE STOMACH CONTENTS BY GIVING WATER OR MILK TOGETHER WITH MILK OF MAGNESIA. GET PHYSICIAN.

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: MINOR SPILLS CAN BE DILUTED AND NEUTRALIZED WITH SODA ASH, LIME OR CAUSTIC. LARGE SPILLS SHOULD BE CONTAINED.
Neutralizing Agent: SODA ASH, LIME, CAUSTIC
Waste Disposal Method: PREVENT WASTE FROM CONTAMINATING SURROUNDING ENVIRONMENT. DISCARD ANY PRODUCT, RESIDUE, DISPOSAL CONTAINER OR LINER IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS.
Precautions-Handling/Storing: STORE IN SHADED, WELL DRAINED STORAGE AREA. DO NOT ADD WATER TO CONCENTRATED SULFURIC ACID. DO NOT ALLOW DILUTE ACID TO CONTACT METALS.
Other Precautions: MOST METALS ARE RAPIDLY CORRODED IN WEAK SULFURIC ACID AND EXPLOSIVE HYDROGEN IS GENERATED. BE SURE SAFETY SHOWER OR OTHER SOURCE OF WATER IS QUICKLY AVAILABLE IN AREAS WHERE PERSONNEL EXPOSURE TO SULFURIC ACID IS POSSIBLE.

Control Measures

Respiratory Protection: WEAR SELF-CONTAINED BREATHING APPARATUS IF TLV IS EXCEEDED. IF VENTILATION IS GOOD, VAPOR FROM SULFURIC ACID AT AMBIENT TEMPERATURES SHOULD NOT EXCEED THE TLV.
Ventilation: LOCAL EXHAUST AND MECHANICAL (GENERAL) VENTILATION AS REQUIRED TO MAINTAIN EXPOSURE LEVELS.
Protective Gloves: REQUIRED
Eye Protection: SAFETY GOGGLES
Other Protective Equipment: CHEMICAL RESISTANT CLOTHING AS NECESSARY TO PREVENT SKIN CONTACT. AN EMERGENCY EYEWASH AND SHOWER SHOULD BE AVAILABLE.
Work Hygienic Practices: WASH HANDS THOROUGHLY WITH SOAP AND WATER BEFORE EATING, DRINKING, SMOKING OR USING TOILET FACILITIES.
Suppl. Safety & Health Data: AGITATION, SPRAY FROM LEAKS, ADDING WATER TO SPILLS, ETC, CAN GENERATE MIST LEVELS THAT WILL GREATLY EXCEED THE TLV. PROPER PERSONAL PROTECTIVE EQUIPMENT SHOULD BE WORN IN SUCH CIRCUMSTANCES.

Transportation Data

Trans Data Review Date: 95178
DOT PSN Code: NUC
DOT Proper Shipping Name: SULFURIC ACID
DOT Class: 8
DOT ID Number: UN1830
DOT Pack Group: II
DOT Label: CORROSIVE
IMO PSN Code: OFJ
IMO Proper Shipping Name: SULPHURIC ACID
IMO Regulations Page Number: 8230 *
IMO UN Number: 1830
IMO UN Class: 8

IMO Subsidiary Risk Label: -
IATA PSN Code: XIX
IATA UN ID Number: 1830
IATA Proper Shipping Name: SULPHURIC ACID
IATA UN Class: 8
IATA Label: CORROSIVE
AFI PSN Code: XIX
AFI Prop. Shipping Name: SULPHURIC ACID
AFI Class: 8
AFI ID Number: UN1830
AFI Pack Group: II
AFI Label: CORROSIVE
AFI Special Prov: 2,A3,A7,N34
AFI Basic Pac Ref: 12-5

Disposal Data

Label Data

Label Required: YES
Label Status: G
Common Name: SULFURIC ACID, CONCENTRATED
Special Hazard Precautions: CONCENTRATED SULFURIC ACID IS A STRONG DEHYDRATING AGENT THAT WILL QUICKLY DAMAGE HUMAN TISSUE, ESPECIALLY IF HEATED. INHALATION OF MISTS CAN DAMAGE RESPIRATORY TRACT AND LUNGS. EYE INJURIES CAN BE SEVERE AND PERMANENT. TISSUE DAMAGE, RESPIRATORY TRACT DAMAGE, SEVERE EYE DAMAGE, BLINDNESS.
Label Name: COULTON CHEMICAL CORPORATION
Label Street: 6600 SYLVANIA AVE
Label City: SYLVANIA
Label State: OH
Label Zip Code: 43560
Label Country: US
Label Emergency Number: 419-885-4661

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ASHLAND OIL -- TT-T-548,TOLUENE - TOLUENE,TECHNICAL
MATERIAL SAFETY DATA SHEET
FSC: 6810
NIIN: 007351751
Manufacturer's CAGE: 81355
Part No. Indicator: A
Part Number/Trade Name: TT-T-548,TOLUENE

General Information

Item Name: TOLUENE,TECHNICAL
Company's Name: ASHLAND OIL,INC
Company's Street: 1409 WINCHESTER AVE
Company's P. O. Box: 391
Company's City: ASHLAND
Company's State: KY
Company's Country: US
Company's Zip Code: 41114
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 001
Date MSDS Prepared: 01JAN85
Safety Data Review Date: 04APR83
Supply Item Manager: CX
MSDS Serial Number: BFMSQ
Specification Number: TT-T-548
Hazard Characteristic Code: F3
Unit Of Issue: CO
Unit Of Issue Container Qty: BULK

Ingredients/Identity Information

Proprietary: NO
Ingredient: TOLUENE (SARA III)
Ingredient Sequence Number: 01
Percent: >60
NIOSH (RTECS) Number: XS5250000
CAS Number: 108-88-3
OSHA PEL: 200 PPM/150 STEL
ACGIH TLV: 50 PPM; 9293

Physical/Chemical Characteristics

Appearance And Odor: COLORLESS,BENZENELIKE ODOR
Boiling Point: 232F
Vapor Pressure (MM Hg/70 F): 38
Vapor Density (Air=1): 4.5
Specific Gravity: 0.871
Evaporation Rate And Ref: 4.5,ETHER
Solubility In Water: NEGLIGIBLE
Percent Volatiles By Volume: 100

Fire and Explosion Hazard Data

Flash Point: 40F TCC.
Lower Explosive Limit: 1.2
Upper Explosive Limit: 7.0
Extinguishing Media: DRY CHEMICAL,REGULAR FOAM,WATER FOG,CARBON DIOXIDE
Special Fire Fighting Proc: SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE
Unusual Fire And Expl Hazrds: VAPORS MAY TRAVEL ALONG THE GROUND & CAUSE FLASH FIRES OR BE IGNITED BY PILOT LIGHTS,FLAMES,SPARKS.

Reactivity Data

Stability: YES
Materials To Avoid: AVOID CONTACT WITH STRONG OXIDIZING AGENTS
Hazardous Decomp Products: CO*2,CO WHEN BURNED
Hazardous Poly Occur: NO

Health Hazard Data

Signs/Symptoms Of Overexp: EYES:SEVERE IRRITATION.SKIN:MODERATE IRRITATION,DEFATTING.BREATHING:NASAL& RESPIRATORY IRRITATION
Emergency/First Aid Proc: SKIN:WASH AREA WITH SOAP & WATER.REMOVE CONTAMINATED CLOTHING-WASH BEFORE RE-USE.EYES:FLUSH WITH LARGE AMTS OF WATER.SWALLOWED:DONOT INDUCE VOMITING,KEEP PERSON WARM,QUIET,GET MEDICAL ATTENTION.BREATHED: REMOVE TO FRESH AIR.KEEP PERSON WARM,QUIET

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: SMALL SPILL: ABSORB LIQUID ON PAPER, VERMICULITE,FLOOR ABSORBENT & TRANSFER TO HOOD.LARGE SPILL: ELIMINATE ALL IGNITION SOURCES.EXCLUDE PEOPLE FROM AREA NIOT WEARING PROTECTIVE EQUIPMENT.STOP SPILL AT SOURCE.RESIDUAL LIQUID MAY BE TAKEN UPON SAND,CLAY
Waste Disposal Method: SMALL SPILL:ALLOW VOLATILE PORTION TO EVAPORATE IN DESTROY BTY LIQUID INCINERATION UNDER CONTROLLED CONDITIONS.MATERIAL COLLECTED ON ABSORBENT MATERIAL MAY BE DEPOSITED IN LANDFIL
Precautions-Handling/Storing: PROTECT CONTAINERS AGAINST PHYSICAL DAMAGE. OUTDOOR OR DETACHED STORAGE IS PREFERABLE.I
Other Precautions: WEAR CHEMICAL GOGGLES,CHEMICAL CARTRIDGE RESPIRATOR OR SELF-CONTAINED BREATHING APPARATUS & RUBBER GLOVES.

Control Measures

Respiratory Protection: NIOSH/MESA JOINTLY APPROVED SELF-CONTAINED BREATHING APPARATUS
Ventilation: AS REQUIRED TO CONTROL TLV IN AIR
Protective Gloves: BUNG-N GLOVES
Eye Protection: CHEMICAL SPLASH GOGGLES
Other Protective Equipment: WEAR IMPERVIOUS CLOTHING & BOOTS
Suppl. Safety & Health Data: SWALLOWING:STOMACH IRRITATION,NAUSEA, VOMITING,DIARRHEA,CHEMICAL PNEUMONITIS (FATAL).SELF CONTAINED BREATHING APPARATUS MUST BE OPERATED IN A PRESSURE DEMAND OR OTHER POSITIVE PRESSURE MODE.

Transportation Data

Trans Data Review Date: 83094
DOT PSN Code: OJY
DOT Proper Shipping Name: TOLUENE
DOT Class: 3
DOT ID Number: UN1294
DOT Pack Group: II
DOT Label: FLAMMABLE LIQUID
IMO PSN Code: OSR
IMO Proper Shipping Name: TOLUENE
IMO Regulations Page Number: 3285
IMO UN Number: 1294
IMO UN Class: 3.2
IMO Subsidiary Risk Label: -
IATA PSN Code: YEL
IATA UN ID Number: 1294
IATA Proper Shipping Name: TOLUENE
IATA UN Class: 3
IATA Label: FLAMMABLE LIQUID
AFI PSN Code: YEL
AFI Prop. Shipping Name: TOLUENE
AFI Class: 3
AFI ID Number: UN1294
AFI Pack Group: II
AFI Label: FLAMMABLE LIQUID
AFI Basic Pac Ref: 7-7

Disposal Data

Disposal Data Review Date: 88085
Rec # For This Disp Entry: 01
Tot Disp Entries Per NSN: 001
Landfill Ban Item: YES
Disposal Supplemental Data: SWALLOWING:STOMACH IRRITATION,NAUSEA,VOMITING, DIARRHEA,CHEMICAL PNEUMONITIS (FATAL).SELF CONTAINED BREATHING APPARATUS MUST BE OPERATED IN A PRESSURE DEMAND OR OTHER POSITIVE PRESSURE MODE. IN CASE OF ACCIDENTAL EXPOSURE OR DISCHARGE, CONSULT HEALTH AND SAFETY FILE FOR PRECAUTIONS.

1st EPA Haz Wst Code New: U220
1st EPA Haz Wst Name New: TOLUENE; METHYLBENZENE
1st EPA Haz Wst Char New: TOXIC (T)
1st EPA Acute Hazard New: NO
2nd EPA Haz Wst Code New: D001
2nd EPA Haz Wst Name New: IGNITIBLE
2nd EPA Haz Wst Char New: IGNITABILITY
2nd EPA Acute Hazard New: NO

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Label Data

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Label Required: YES
Label Status: F
Special Hazard Precautions: MAY BE POISONOUS IF INHALED OR ABSORBED THROUGH SKIN. VAPORS MAY CAUSE DIZZINESS OR SUFFOCATION. CONTACT MAY IRRITATE OR BURN SKIN AND EYES. FIRE MAY PRODUCE IRRITATING OR POISONOUS GASES. RUNOFF FROM FIRE CONTROL OR DILUTION WATER MAY CAUSE POLLUTION.
Label Name: ASHLAND OIL INC
Label Street: 1409 WINCHESTER AVE
Label P.O. Box: 391
Label City: ASHLAND
Label State: KY
Label Zip Code: 41114
Label Country: US

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APPENDIX D
SITE-SPECIFIC PERSONAL PROTECTIVE EQUIPMENT (PPE) PROGRAM

1. OBJECTIVE

OHM Remediation Services Corp. (OHM) personnel will be protected for chemical, physical, and environmental hazards by the appropriate personal protective equipment (PPE) when engineering and administrative controls are not effective in controlling job hazards.

2. PURPOSE

The purpose of this procedure is to address the elements of the PPE program. This PPE program conforms to the requirements found in 29 CFR 1910.120 (g) Engineering controls, work practices, and personal protective equipment for employee protection; 29 CFR 1910 Subpart I - Personal Protective Equipment - .132 General Requirements, .133 Eye and Face Protection, .135 Head Protection, .136 Foot Protection, .138 Hand Protection; and 29 CFR 1910.1200 Hazard Communication.

3. RESPONSIBILITY AND AUTHORITY

The responsibility and authority for the selection, use, and maintenance of personal protective equipment is shared between management, supervisory, health and safety, and employee personnel.

3.1 Management - Management has the responsibility to provide PPE appropriate for the hazard/s associated with expected work tasks.

3.2 Supervisors - Supervisors have the responsibility to conduct hazard assessments and ensure personnel to utilize PPE in compliance with this SOP. Supervisors may request assistance from or designate authority to health and safety personnel for hazard assessment, selection, inspection, and decontamination of PPE. The use of PPE by employees is the supervisor's responsibility.

3.3 Health and Safety Personnel - Health and safety personnel have the responsibility to assist supervisors in hazard assessment, selection, inspection, and decontamination of PPE. In the event of conflict, health and safety personnel have the authority to implement the necessary measures.

3.4 Employees - Employees have the responsibility to use, inspect, and decontaminate PPE as directed by supervisors.

4. PROGRAM ELEMENTS

Program elements define the regulatory requirements of a PPE program.

4.1 Hazard assessment - All tasks undertaken by OHM personnel will be assessed for chemical, physical, and environmental hazards present or likely to be present which necessitate the use of PPE to ensure adequate protection. This assessment shall take place prior to commencement of work.

4.2 Hazard Reassessment - The level of protection or type of personal protective equipment shall be increased when additional information on site conditions indicates that increased protection is necessary to reduce employee exposures below permissible exposure limits, published exposure levels for hazardous substances and health hazards, or other physical and environmental hazards.

4.3 PPE Selection - The regional health and safety director/manager or designee will initially select the level and types of PPE that will protect the affected employee from the hazards identified in the initial hazard assessment.

4.4 Written Certification - The site specific Health and Safety Plan (HASP) will serve as the written certification that identifies the workplace was evaluated. The HASP shall be dated. The signature line shall designate the person certifying that the evaluation has been performed.

4.5 Communication of Selection - Employees will be informed of the PPE selection decisions through reading or verbally reviewing the HASP, attending pre-project safety briefings, job safety analysis (JSA) review, or attending safety meetings.

4.6 PPE Use and Fit - The supervisor will be responsible for the proper use and fit of PPE by workers under their direction and will monitor the effectiveness of these items. Heath and safety personnel will advise and assist the supervisor in these areas.

4.7 Work Mission Duration - The supervisor will be responsible for the establishment of the duration of specific work missions. The duration will be determined by the complexity of the assignment, PPE involved, physical factors, temperature, humidity, weather conditions, elevation of work, and acclimation of the worker to the demands of the task assigned. The supervisor will consider the recommendations of the health and safety personnel.

A sufficient amount of rest breaks will be allowed in order to avoid overexertion or thermal stress by the employees while maintaining productive work practices. Further guidance is offered in OHM Health and Safety Procedures entitled Heat Stress and Cold Stress.

4.8 PPE Maintenance and Storage - Each employee is responsible for the proper maintenance and storage of the standard issue equipment (e.g., hard hat, full-face piece negative pressure respirator, safety glasses). The supervisor will assure that proper maintenance is carried out.

4.9 PPE Decontamination - Each employee is responsible for daily cleaning and decontamination of reusable PPE such as outer gloves, outer boots, reusable chemically resistant clothing, and standard issue PPE such as hard hats and respirators.

OHM will provide an area/s for decontamination operations, necessary cleaning agents, cleaning tools, such as brushes and wash basins, and a method to dispose of materials generated during decontamination activities.

OHM will attempt to reduce decontamination requirements through the use of disposable protective clothing and gloves as feasible.

4.10 PPE Training - All employees will receive training in the proper use of PPE prior to wearing the equipment in a work situation. This training will be administered upon commencement of employment during HAZWOPER training. PPE refresher training will be reviewed annually during the HAZWOPER refresher training. Project specific training will be provided as required.

4.11 PPE Donning and Doffing Procedures - All employees will receive training upon commencement of employment and during annual refresher training concerning the donning and doffing of PPE. Periodic training will be provided as required.

4.12 PPE Inspection - Each employee shall inspect PPE for defects and proper function prior to each use. Defective or damaged PPE shall not be used. Any PPE found to be defective or have missing parts will be replaced prior to use.

4.13 PPE In Use Monitoring - The supervisor is responsible for monitoring the effectiveness of selected PPE. If at any time level of PPE is to be downgraded, it is mandatory that the change be approved by the regional health and safety director/manager or designee.

4.14 Evaluation of PPE Program - Health and safety personnel will compile data on PPE in the field to determine that the PPE performs to OHM needs. Periodically, this information should be reviewed cognizant health and safety professional to ensure that PPE is providing the necessary level of protection, quality, and is appropriate for the work performed.

If at any time the failure of PPE causes injury to an employee or fails to perform as expected, the supervisor will take the unit or item out of service and investigate the incident. The incident shall be immediately reported to the regional health and safety director/manager. If after scrutiny, the unit or item is determined to have a manufacturing defect, all identical units will be removed from use until corrective actions are taken.

4.15 Limitations During Temperature Extremes - Extreme temperatures exert stress on personnel and may alter the performance characteristics of PPE. During periods of extreme temperature, work assignments will be adjusted to protect the employee from overexertion or exposure. The supervisor will evaluate if temperature extremes are effecting performance characteristics of PPE and report these findings to the regional health and safety director/manager.

4.16 Unserviceable PPE - Any PPE which is no longer functioning properly or is no longer serviceable shall be removed from use and either repaired or destroyed.

5. SAFETY EQUIPMENT POLICY

OHM will provide, maintain, and replace personal protective equipment as detailed below.

5.1 Standard issue safety equipment - Standard issue safety equipment will be provided at no cost to field employees. These items consist of:

- Hard hat
- Safety glasses with clear and shaded lenses
- Full-face respirator with nose cup

5.2 Company provided equipment - OHM will provide at no cost to the employee the following items on a task specific or project specific basis:

- Chemical protective equipment such as gloves, boots, and clothing
- Specialty glasses or goggles

- Face shields
- Flame resistant clothing
- Hearing protection
- Fall protection

5.3 Employee provided equipment - The employee shall provide the following equipment:

- ANSI approved steel toed and shank boots/shoes (Note: Further guidance is provided in Section 7 Safety footwear)
- Outerwear for cold weather

5.4 Equipment replacement - OHM will replace worn-out or work-damaged equipment detailed in 5.1 and 5.2. OHM reserves the right to charge employees for the replacement cost of equipment which is lost or damaged though neglect or abuse.

5.5 Additional PPE - The regional health and safety director/manager or the supervisor may require additional company provided PPE on a task specific basis.

6. WORK CLOTHES

OHM employees, subcontractors, and visitors will observe the requirements for proper work clothing when on OHM project sites, facilities, and shops.

6.1 Pants - Long pants are required at all times. These pants must be in good repair.

6.2 Shirts - Shirts will be worn on the job. Shirts will be buttoned up the front and at the cuff unless rolled up. Shirt tails must be kept in the trousers. Sleeveless shirts are prohibited at all work locations. Supervisory personnel are expected to wear a shirt with a collar. T-shirts are permitted for personnel who wear protective clothing most of the day.

6.3 Clothing - Loose or ragged clothing will not be worn.

6.4 Modifications - Regional health and safety director/manager may modify work clothing requirements on a project specific basis.

6.5 Contaminated Clothing - Clothing (including shoes) saturated with petroleum products or chemicals will be removed immediately to prevent irritation and possible dermal exposure.

6.6 Jewelry - Rings and other jewelry (except watches) must be removed when working in areas where they could catch on moving objects, sharp protrusions, come in contact with electrical circuits or chemical agents, or compromise PPE ie. rings capable of cutting gloves. Additionally, the supervisor may deem other types of jewelry inappropriate for the work task.

6.7 Hair Length - Hair long enough to constitute a hazard while working around moving machinery or rotating tools and equipment must be secured by a net or tied back. Hair styles must not interfere with the ability to properly wear safety headgear, safety spectacles, and respiratory protection.

7. EYE/FACE PROTECTION

All OHM employees, subcontractors, and visitors shall wear eye and face protection meeting the requirements of ANSI document Z87.1 - 1989 titled "Practice of Occupational and Educational Eye and Face Protection" during the tasks posing exposure to eye or face injury.

7.1 Requirements - To protect the face and eyes against injuries from flying objects, splashing liquids, and harmful rays, safety spectacles with side shields, goggles, face shields, cutting goggles, and welding helmets will be used as appropriate. The supervisor will be responsible to identify the need for eye/face protection and specify the eye/face protection required for each operation. A selection guide is attached in Table 1.

7.2 Safety spectacles - Safety spectacles are protective devices intended to shield the wearer's eyes from a variety of hazards. While they are primary protectors and may be used alone, they may also be used in conjunction with other protective devices such as goggles and face shields.

7.3 Goggles - Goggles are protective devices intended to fit the face immediately surrounding the eyes in order to shield the eyes from a variety of hazards. While they are primary protectors and may be used alone, they also may be used in conjunction with other protectors.

7.4 Face shields - Face shields are protective devices intended to shield the wearer's face, or portions thereof, in addition to the eyes, from certain hazards. Face shields are secondary protectors and shall be used with primary protectors.

7.5 Cutting goggles - Cutting goggles are protective devices designed to protect the eyes from radiation and impact. Goggles are primary protectors and in some situations must be supplemented with face shields. See Table 2 for selection guidelines.

7.6 Welding helmets - Welding helmets are protective devices intended to shield the eyes and face from optical radiation and impact. Welding helmets are secondary protectors and shall be used only in conjunction with primary protectors such as safety spectacles or goggles. See Table 3 for selection guidelines.

7.7 Prescription Spectacles - For personnel that wear prescription spectacles, OHM provides prescription safety spectacles with side shields. It is mandatory that prescription safety spectacles not be altered by the employee and be worn at all times when safety spectacles are required.

7.8 Contact lenses - Contact lenses are not permitted to be worn where accidental eye contact with chemical agents or physical materials is possible. OHM provides prescription spectacles and other protective devices for use in these situations.

7.9 Shaded lenses - Shaded lenses are not to be worn indoors or under low light conditions.

8. SAFETY HEADGEAR

All OHM employees, subcontractors, and visitors shall wear safety headgear meeting the requirements of ANSI document Z89.1-1986 titled "Protective Headwear for Industrial Workers - Requirements" when exposed to overhead hazards.

8.1 Requirement - Safety headgear shall be worn by all personnel while engaged in work where there is a hazard of falling objects, low overhead restrictions, and other overhead hazards exist. Safety headgear may also be required to be worn by contractual requirements.

8.2 Use - Safety headgear must be worn as prescribed by the manufacturer in the bill front position unless the headgear was approved to be worn in another position.

8.3 Modifications - Safety headgear shall not be painted, drilled or modified in any manner. Use of safety related headgear stickers are permitted.

8.4 Life Expectancy - No maximum mandatory service life is specified by regulation for safety headgear. However, a hard hat should be removed from service if chemical corrosion, cracks, deformities, worn suspension, or discoloration is noted with the unit.

9. SAFETY FOOTWEAR

All OHM employees, subcontractors, and visitors that enter OHM project sites and are exposed to foot hazards shall wear footwear meeting the ANSI document Z41 - 1991 titled "Protective Footwear" during operations posing foot injury.

9.1 Project Sites - Steel toe and shank leather work boots shall be worn on all OHM project sites. High top or low top sneakers, western style boots, or other footwear even though ANSI approved are not appropriate for the activities encountered at hazardous waste and emergency response sites and shall not be worn.

9.2 OHM Facilities and Shops - Personnel working at OHM shops and facilities have the option of wearing other types of ANSI approved safety work shoes and boots provided they are appropriate for the tasks being performed. The supervisor of the work area is responsible to decide what type footwear is appropriate.

10. HAND PROTECTION/GLOVES

OHM employees, subcontractors, and visitors will don appropriate gloves when engaged in any operation that presents a hazard to the hands.

10.1 Use - Appropriate work gloves shall be available for hand protection against heat and flame, cold, chemicals, petroleum products, corrosive materials, moisture, mechanical abrasion, electricity, and sharp and rough surfaces.

10.2 Selection - Glove selection of the appropriate hand protection shall be based on an evaluation of the performance characteristic of the hand protection relative to the task(s) to be performed, chemical concentration and properties, physical conditions present, duration of use, and the hazards and potential hazards identified. The type of work gloves used must be approved by the regional health and safety director/manager and designee as specified in the HASP for the particular task.

10.3 Electrical - When working on high voltage (480 volts and above) electrical equipment, electrically tested high voltage gloves will be worn. Leather protection will be worn over these gloves. (NOTE: Only authorized personnel are permitted to work on High Voltage electrical equipment).

11. PROTECTIVE CLOTHING

OHM employees, subcontractors, and visitors will don appropriate protective clothing when engaged in any operation that presents a hazard to the body.

11.1 Use - Appropriate clothing shall be available for body protection against heat and flame, cold, chemicals, petroleum products, corrosive materials, moisture, mechanical abrasion, electricity, and sharp and rough surfaces.

11.2 Selection - Clothing selection of the appropriate body protection shall be based on an evaluation of the performance characteristic of the body protection relative to the task(s) to be performed, chemical concentration and properties, physical conditions present, duration of use, and the hazards and potential hazards identified. The type of protective clothing used must be approved by the regional health and safety director/manager and designee and specified in the HASP for the particular task.

12. TOTALLY-ENCAPSULATING CHEMICAL PROTECTIVE SUITS

Totally-encapsulating chemical protective suits (Level A) shall be used in conditions where skin absorption of a hazardous substance may result in a substantial possibility of immediate death, immediate serious illness or injury, or impair the ability to escape.

12.1 Use - OHM will only use Level A protection when all other reasonable efforts of controlling employee exposure through engineering or administrative means are not possible.

12.2 Authorization - Level A protection may only be used after authorization of the regional health and safety director/manager has been granted.

12.3 Health and Safety Personnel - An appropriately experienced health and safety employee must be assigned to the project site where Level A is to be used. They must evaluate that the following items are ready:

- Communications
- Decontamination
- Emergency rescue procedures and personnel
- Emergency medical attention

12.4 OHM will discard and properly dispose of any Level A suit which has come in contact with chemical contaminants or sustained physical damage at least at the end of the project.

13. LOANING PERSONAL PROTECTIVE EQUIPMENT

OHM personnel should not loan OHM personal protective equipment to any client, subcontractor, or visitor personnel. If there are urgent circumstances, such as an emergency response where the equipment cannot be obtained elsewhere and chemical exposure is possible, OHM personnel can loan personal protective equipment such as respirators, protective clothing and other safety equipment to client personnel or personnel from other organizations. However because of the potential liability involved, approval of senior OHM management is required as well as the requirement that a representative of the company and the individual using the equipment execute an OHM Indemnification and Release Agreement. A copy of this agreement is attached in Appendix A.

13.1 Execution of Indemnification and Release Agreement - In general, the following will be required BEFORE the personal protective equipment may be loaned:

- The OHM Regional Vice President (or designee) must specifically authorize the loaning of personal protective equipment on the particular project.
- An authorized representative of the company whose personnel will use the equipment must sign the Indemnification and Release Agreement.
- The individual who will use the equipment must also sign the Indemnification and Release Agreement attesting to the fact that the individual is either experienced in the use of the equipment or has been given instruction on the safe use of the equipment and is medically qualified to wear the equipment.
- An OHM representative must also sign the form as a witness to the above.

13.2 Contractual Requirement - An indemnification and release agreement is not required if providing personal protective equipment to clients or regulatory personnel is a contractual requirement.

13.3 Exemptions - Hard hats, safety glasses, hearing protection, and protective clothing provided for cleanliness is exempted for the indemnification requirement. Instruction should be provided to the individual prior to wearing.

OHM Remediation Services Corp.
A Subsidiary of OHM Corporation

APPENDIX A
OHM REMEDIATION SERVICES CORP.
INDEMNIFICATION AND RELEASE AGREEMENT FOR PERSONAL PROTECTION CLOTHING

FOR AND IN CONSIDERATION OF the use by the undersigned of property belonging to OHM Remediation Services Corp. (hereinafter referred to as "OHM") and which may include full-face mask respirators, self-contained breathing apparatus, and other equipment and supplies, and other good and valuable consideration, the undersigned , for himself and his successors, and assigns, does hereby release and discharge OHM, its officers, employees, agents, and subcontractors from any and all claims, actions, demands, damages, costs, loss of services, expenses, compensation, third-party actions, or suits, including attorneys fees, arising and resulting from the aforementioned use of property, equipment, or supplies belonging to OHM.

In addition, the undersigned, on behalf of his employer, principal, himself, and his successors, and assigns, agrees to release, save, and hold harmless, protect, indemnify, and defend OHM, and its officers, employees, agents, and subcontractors against any and all claims, actions, and expenses as above described, whether for bodily injury, property damage or destruction, or both, arising or resulting in any way from the use by the undersigned of property of OHM and agrees to save, hold harmless, protect, indemnify, and defend OHM against any such claims, actions, or expenses, referenced above, that might be brought against OHM by any third persons or the heirs, successors, executors or assigns of the undersigned.

The undersigned acknowledges by signing that he has carefully read this Agreement, understands the contents thereof, and has freely and voluntarily signed the same.

EXECUTED on _____, 19___.

1. OHM Regional Vice President (or designee) authorizing use of equipment:

   _____

2. CLIENT OR SUBCONTRACTOR REPRESENTATIVE AUTHORIZING EQUIPMENT USE:

   I authorize the individual(s) in 3. below to use OHM provided personal protective equipment

   Company Name_____

   Sign Name_____

   Print Name_____

   Title_____

3. INDIVIDUAL USING EQUIPMENT: I certify that I am familiar with the equipment and medically qualified to wear the equipment

   Company Name_____

   Sign Name_____

   Print Name_____

   NOTE: A continuation sheet can be used if more than one individual is to be certified to use equipment

4. OHM Representative Acknowledging Signatures:

   Sign Name_____

OHM Remediation Services Corp.
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TABLE 1
FACE PROTECTION SELECTION GUIDELINES

Hazard	Protection
Flying fragments, objects, large chips, particles, sand, and dirt from chipping, grinding, machining, masonry work, riveting, and sanding	Safety spectacles or goggles Supplement with face shield for severe exposure
Chemical splash from corrosive and chemical handling, pressure washing operations	Goggles Supplement with face shield for severe exposure
Nuisance dust from woodworking, buffing, and general dusty conditions	Safety spectacles or goggles
Hot sparks from grinding operations	Safety spectacles or goggles Supplement with face shield for severe exposure
Molten metal from torch cutting operations	Shaded cutting goggles (see Table 3) and face shield
Welding operations	Safety spectacles and shaded welding hood (see Tables 2)

TABLE 2

GUIDE FOR CUTTING SHADE NUMBERS

Operation	Plate Thickness	Minimum Protective Shade
Gas Welding		
Light	Under 1/8	4 or 5
Medium	1/8 to 1/2	5 or 6
Heavy	over 1/2	6 or 8
Oxygen Cutting		
Light	Under 1	3 or 4
Medium	1 to 6	4 or 5
Heavy	Over 6	5 or 6

TABLE 3

GUIDE FOR WELDING SHADE NUMBERS

Operation	Electrode Size 1/32 inch	Arc Current (A)	Minimum Protective Shade	Suggested* Shade No. (Comfort)
Shielding metal arc welding	Less than 3	Less than 60	7	—
	3-5	60-160	8	10
	5-8	160-250	10	12
	More than 8	250-550	11	14
Gas metal arc welding and flux cored arc welding		Less than 60	7	—
		60-160	10	11
		160-250	10	12
		250-500	10	14
		150-500	10	14
Air carbon Air cutting	(Light)	Less than 500	10	12
	(Heavy)	500-1000	11	14
Plasma arc welding		Less than 20	6	6 to 8
		20-100	8	10
		100-400	10	12
		400-800	11	14
Plasma arc cutting	(Light)	Less than 300	8	9
	(Medium)	300-400	9	12
	(Heavy)	400-800	10	14
Torch brazing		—	—	3 or 4
Torch soldering		—	—	2
Carbon arc welding		—	—	14

*As a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to a lighter shade which gives sufficient view of the weld zone without going below the minimum. In oxyfuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation.